

Building Ordinance



City of Cambridge



1850.
1851.
1852.
1853.
1854.



Cambridge, Mass., Charters and Ordinances: 1908.
THE BUILDING ORDINANCE

OF THE
CITY OF CAMBRIDGE
MASSACHUSETTS

Compliments of

City of Cambridge

Thos. H. Tracy

Superintendent of Public Buildings

Published by

THE SUPERINTENDENT OF PUBLIC BUILDINGS

THE SUPERINTENDENT OF PUBLIC BUILDINGS
CAMBRIDGE

March 1, 1908

C.

KFX
1213
A35
1908

MAY 13 1910

STATE HOUSE, BOSTON.

CONTENTS

	PAGE
SECTIONS 1-10. BUILDING DEPARTMENT	3-15
Organization, Officers, Powers, Fire Limits, Limitations.	
SECTION 11. BUILDING TERMS	15
Definitions of Words Used.	
SECTIONS 12-13. BUILDINGS, REQUIREMENTS FOR	
ALL	16-19
Permits, Prohibitions, etc.	
SECTIONS 14-16. BUILDING MATERIALS	19-26
Brick, Iron, Steel, Concrete, Wood, etc.	
SECTION 17. BUILDING CLASSIFICATIONS	26, 27
First, Second, Third, Composite.	
SECTIONS 18-41. BUILDING CONSTRUCTION	27-40
Height, Excavations, Piling, Fireproofing, etc.	
SECTIONS 42-76. TENEMENT HOUSES, ADDITIONAL	
REQUIREMENTS FOR	40-51
Definitions of Terms, Fire-escapes, Construction, Restrictions, etc.	
SECTIONS 77-111. THEATERS AND PLACES OF PUBLIC	
ASSEMBLY	51-59
Construction, Courts, Curtain, etc.	
SECTIONS 112-124. PLUMBING AND PLUMBERS	59-66
Definition of Terms, Registration, Inspection, etc.	
SECTION 125. GAS FITTING AND GAS-FITTING MATERIALS	66-69
SECTION 126. HAZARDOUS BUILDINGS AND APPLIANCES	69, 70
Regulations Relative to	
SECTION 127. COMBUSTIBLE MATERIALS	70
Habitable Buildings Not to be Used for Storage, etc.	
SECTION 128. NOTICES	70
Requirements for Sending	
SECTION 129. REPEALS	70
Conflicting Acts and Ordinances Repealed.	
SECTION 130. THIS ORDINANCE TAKES EFFECT	
March 1, 1908	70
SPECIFICATIONS FOR FIRE ESCAPES	71
INDEX	i

1908.

OFFICERS OF THE BUILDING DEPARTMENT.

THOS. F. TRACY

Supt. of Public Buildings and Inspector of Buildings

JAMES W. EMERY.....*Inspector*

LEONARD D. GARFIELD.....*Inspector*

WILLIAM A. FORD.....*Inspector*

WILLIAM H. SHERIDAN.....*Clerk*

ORGANIZATION BOARD OF APPEAL.

CLARENCE H. BLACKALL, *Chairman*

JOHN B. BYRNE

HARRY N. STEARNS

WILLIAM H. SHERIDAN, *Clerk*

EXAMINING BOARD OF PLUMBERS.

THOMAS F. TRACY

CHARLES H. THOMAS

JOHN T. PHELAN

THE BUILDING ORDINANCE

OF THE

CITY OF CAMBRIDGE

AN ORDINANCE IN RELATION TO THE CONSTRUCTION,
MAINTENANCE, AND INSPECTION OF BUILDINGS.

*Be it ordained by the City Council of the City of
Cambridge, as follows:*

ADMINISTRATION.

SECTION I. — There shall be in the city of Cambridge a department, to be called the Building Department, which shall be under the charge of a Superintendent of Public Buildings, hereinafter designated as the Superintendent, who shall also be the Inspector of Buildings. The Superintendent, who shall have had at least five years' experience as an architect or a builder, shall be appointed by the Mayor, subject to confirmation by the Board of Aldermen. He shall receive such salary as shall be fixed by ordinance. He shall have sole charge of the construction, inspection, repair, alteration, care and custody of all public buildings of the city, except schoolhouses, not constructed for or by any other special department, and of the construction and alteration of schoolhouses, and shall supervise and direct the construction and alteration of buildings of other departments whenever so requested by any such department.

The present officers and employees of the Building Department shall hold their several offices and positions during their term of office or until removed or discharged according to law.

The Superintendent shall, under civil service rules, with the approval of the Mayor, appoint a clerk and such number of inspectors, employees, and assistants as the Mayor shall, from time to time, determine. No person shall be appointed as inspector of construction who has not had at least five years' experience as a builder, architect, or as a superintendent or foreman, or competent mechanic in charge of building construction.

The Superintendent may appoint as his deputy an inspector in the department, who shall, during the absence

or disability of the Superintendent, exercise all the powers of the Superintendent, and in case he shall fail to act, the Mayor may designate such a deputy. No officer connected with the department shall engage in any other business or be interested in the doing of work or the furnishing of material for the construction, repair or maintenance of any building, or in the making of plans or of specifications therefor, unless he is the owner of the building or a member of the Board of Appeal.

The clerk of the department shall, under the direction of the Superintendent, keep a record of the business of the department, and the Superintendent shall submit to the Mayor a yearly report of such business. The records of the department shall be open to public inspection. The Superintendent may require plans and specifications of any proposed structure or for the alteration of any structure or building to be filed with him, duplicates of which, when approved by the Superintendent, shall be kept at the building during the progress of the work. Such duplicate shall be open to the inspection of any inspector in said department.

The Superintendent shall grant permits for the construction, alteration, removal or tearing down of buildings or structures, and for plumbing and setting and maintenance of steam boilers and furnaces when application for the same are made and filed in conformity with law.

All permits issued by the Superintendent shall be on printed forms approved by him.

If the Superintendent finds that the terms of a permit are being violated, he may, after notice mailed to the person to whom the permit was issued, order the whole or any part of the work which is being done under the permit to be stopped, and such work shall not be resumed until the terms of the permit have been complied with, to the satisfaction of the Superintendent.

All applications for permits under the provisions of this ordinance shall be in writing, on forms furnished by the department. The Superintendent may require the material facts set forth in the same, to be verified by the oath of the applicant; he may also require, in his discretion, a survey of a lot on which any proposed building is to be erected to be filed with the application. Every application shall state the name and address of the owner.

SEC. 2. — The Superintendent, or one of his inspectors, shall examine as often as is practicable every building in the course of construction or alteration, and shall make record of all violations of this ordinance and of all other matters relative thereto. The publication of such records, with the consent of the Superintendent, shall be permitted.

SEC. 3. — The Superintendent, or one of his inspectors, shall examine any building reported as dangerous or

damaged, and shall make a record of such examination, stating the nature and estimated amount of the damage, and the purpose for which the building was used, and in case of fire, the probable origin thereof; and shall examine all buildings in respect to which applications have been made for permits to raise, enlarge, alter or repair, and shall make a record of every such examination.

SEC. 4. — The Superintendent, or one of his inspectors, shall inspect every building or other structure or anything attached to or connected therewith which he has reason to believe to be unsafe or dangerous to life, limb, or adjoining buildings, and if he finds it unsafe or dangerous, he shall forthwith in writing notify the owner, agent or any person having an interest therein to secure the same, and shall affix in a conspicuous place upon its external walls a notice of its dangerous condition. Said notice shall not be removed or defaced without his consent.

The Superintendent may, with the written approval of the Mayor, order any building which in his opinion is unsafe to be vacated forthwith.

SEC. 5. — The person notified as provided in the preceding section shall secure or remove said building, structure, attachment or connection forthwith. If the public safety so requires, the Superintendent, with the approval of the Mayor, may at once enter the building or other structure, the land on which it stands or the abutting land or building, with such assistance as he may require, and at the expense of the owner secure the same and erect such protection for the public by proper fence or otherwise, as may be necessary, and for this purpose may close a public highway.

BOARD OF APPEAL.

SEC. 6. — There shall be in the city of Cambridge a board, to be called the Board of Appeal, which board shall consist of three members, including always one architect and one master builder, who shall be appointed by the Mayor, subject to confirmation by the Board of Aldermen.

In the month of March in the year nineteen hundred and eight the Mayor shall, subject to confirmation as aforesaid, appoint one member of said board, who shall hold office for a term of one year from the first day of said month; one member, an architect, who shall hold office for a term of two years from the first day of said month, and one member, a master builder, who shall hold office for a term of three years from the first day of said month; and annually thereafter in the month of February the Mayor shall, subject to confirmation as aforesaid, appoint one member of said board who shall hold office for a term of three years from the first day of March following.

The Mayor shall likewise, subject to confirmation, as aforesaid, fill all vacancies in said board caused by death, resignation, or removal, for any unexpired term.

Members of said board shall hold office until their successors shall have been appointed and shall have qualified.

Any member of said board may be removed by the Mayor for malfeasance, incapacity or neglect of duty, subject to approval by the Board of Aldermen.

No member of said board shall sit on a case in which he is interested, and in case of such disqualification, or of the necessary absence of any member, the other two members shall appoint a substitute. If two or more members are so disqualified or absent, the Mayor may appoint substitutes to act during disqualification or absence.

The clerk of the Building Department shall act as clerk of said board. The reasonable expenses of said board, including such clerical assistance and office expenses as shall be approved by the Mayor, shall be paid by the city of Cambridge.

SEC. 7. — An applicant for a permit whose application has been refused by the Superintendent may appeal therefrom within ninety days. A person may appeal from any decision of the Superintendent within ten days after being notified of such decision, by giving to the Superintendent notice in writing of his appeal. Said notice or a certified copy thereof shall be at once transmitted by the Superintendent to the Board of Appeal. After notice to the appealing party, the Superintendent, and to such other parties as the board shall order, a hearing shall be had, and said board shall affirm, annul or modify said refusal or order.

Every decision of said board shall be in writing, shall require the assent of two members, except as otherwise provided herein, shall specify the variations allowed and the reasons therefor, and shall be filed in the office of the Superintendent within ten days after the hearing. A certified copy shall be sent by mail or otherwise to the applicant, and a copy kept publicly posted in the office of the Superintendent for two weeks thereafter. If the order or refusal of the Superintendent is affirmed, such order or refusal shall have full force and effect. If said order or refusal is modified or annulled, the Superintendent shall issue a permit in accordance with said decision.

The provisions of this section shall also apply to any similar action or order of the city electrician.

SEC. 8. — Methods of construction or maintenance equally substantial to those required by the provisions of the ordinance may be allowed with the written consent of the Superintendent and the Board of Appeal specifying such

methods. A record of the method allowed shall be kept in the office of the Superintendent.

It shall be the duty of the Board of Appeal to submit to the Mayor on or before the first of December of each year a report giving a summary of all decisions of the board, together with such recommendations for revision of the law as may to them seem advisable.

Any requirement necessary for the strength or stability of any proposed structure or the safety of the occupants thereof not specifically covered by this ordinance shall be determined by the Superintendent, subject to appeal.

SEC. 9. — The fire limit districts of the city of Cambridge shall be as follows:

FIRE LIMITS.

(A) For the better protection of the lives and property of the inhabitants and other persons, it is hereby ordained that: The territory at and within the distance of three miles from the present City Hall be and hereby is established as a fire limit.

(B) Within the fire limit, as established, all dwelling houses of more than two stories in height, now or hereafter erected, and within the distance of ten feet from any other building or structure, shall be furnished with a front and rear stairway, or some equally safe means of egress.

First. — Starting from the westerly end of Harvard Bridge on Massachusetts Avenue and running continuously therefrom on both sides of Massachusetts Avenue to Waterhouse Street, including Lafayette, Central, Putnam, Quincy, and Harvard squares, and within the area included between the city building lines wherever established on said Massachusetts Avenue and squares, and where such building lines are not established, within the area included between the lines of private ownership adjacent to the lines of said Massachusetts Avenue and squares and a line distant one hundred feet to the right and left at right angles from each and every point of said building lines and said street lines of private ownership on both sides of said Massachusetts Avenue and all sides of said squares, between the westerly end of Harvard Bridge and said Waterhouse Street as aforesaid.

Second. — Starting from the westerly end of Craigie Bridge and running continuously therefrom on both sides of Bridge Street to and including Lechmere Square, and thence running continuously westerly on both sides of Cambridge Street to and including Inman Square, and within the area included between the city building lines wherever established on said Bridge and Cambridge streets

and said squares and where building lines are not so established, within the area included between the lines of private ownership adjacent to the lines of said Bridge and Cambridge streets and said squares and a line distant one hundred feet to the right and left at right angles from each and every point of said building lines and said street lines of private ownership on both sides of said Bridge and Cambridge streets, and all sides of said squares between the westerly end of Craigie Bridge and Inman Square as aforesaid.

Third.— Starting from the harbor commissioners' line on the westerly side of Charles River on the westerly end of Cambridge Bridge, and running continuously on both sides of Main Street to and including Kendall Square and Smith Square, and thence running continuously westerly on both sides of said Main Street to its intersection with Massachusetts Avenue at Lafayette Square and with the area included between the city building lines wherever established in said Main Street and said squares and where building lines are not so established within the area included between the lines of private ownership adjacent to the lines of said Main Street and said squares and a line distant one hundred feet to the right and left at right angles from each and every point of said building lines and said street lines of private ownership on both sides of said Main Street and all sides of said squares between the harbor commissioners' line on the westerly end of Cambridge Bridge to Lafayette Square as aforesaid.

Fourth.— All that territory which lies south and west and is bounded northerly and easterly by the first fire district above described, and is included on all its other sides within and is bounded westerly and southerly by the following lines: Commencing at a point in the westerly limit of said first fire district one hundred feet northerly from the northerly line of Church Street, thence running continuously southwesterly and southerly on a line distant one hundred feet at right angles from each and every point of the northerly or westerly line of said Church Street to Brattle Street, and thence across said Brattle Street, at right angles therewith, and then continuing in the same line to a point on property of private persons distant one hundred feet southerly from the southerly line of Brattle Street; thence running easterly continuously on a line distant one hundred feet, at right angles, from each and every point of the southerly line of said Brattle Street, across Brattle Square to the intersection of the southerly line of Mt. Auburn Street with said Brattle Square; thence northeasterly continuously along and bounded by the southerly line of Mt. Auburn Street to Putnam Square and the southerly boundary line of the first fire district above mentioned.

Fifth. — Commencing at the intersection of the southerly line of Broadway with the westerly line of Sixth Street and running continuously westerly therefrom on the southerly side of Broadway to Clark Street and within the area included between the lines of private ownership adjacent to the southerly line of said Broadway and a line distant one hundred feet to the left at right angles from each and every point of said street lines of private ownership on the southerly side of Broadway, between said Sixth Street and said Clark Street.

Sixth. — All that territory which is included between the following lines: Commencing at the intersection of the westerly line of Third Street with the southerly line of Broad Canal; thence running continuously northwesterly along and bounded by the southerly line of said Broad Canal and the division line between Wards two and three to the southerly line of said Potter Street; thence running continuously westerly along and bounded by the southerly line of said Potter Street to the easterly line of Portland Street; then running continuously southerly along and bounded by said easterly line of Portland Street to the northerly line of Broadway; thence running continuously easterly along across Mechanics' Square and bounded by the northerly line of said Mechanics' Square and said Broadway to the westerly line of said Third Street; thence running continuously northerly along and bounded by the westerly line of said Third Street to the point of beginning.

Seventh. — All that territory which lies south and is bounded northerly by the second fire district, above described, and is included on all its other sides within and is bounded easterly, southerly and westerly by the following lines: Commencing at a point in the southerly limit of said second fire district on the westerly side of First Street one hundred feet southerly from the southerly line of Cambridge Street; thence running continuously southerly along and bounded by said westerly line of First Street to the northerly line of Spring Street; thence running continuously westerly along and bounded by said northerly line of said Spring Street across said Third Street to a point distant one hundred feet westerly from the westerly line of said Third Street; thence running northerly continuously therefrom on a line distant one hundred feet to the left at right angles from each and every point of the street lines of private ownership on said westerly side of Third Street to the southerly line of Cambridge Street and the second fire district above described.

Eighth. — Starting from the westerly side of the location of the Fitchburg Railroad Company on Massachusetts Avenue and running westerly continuously therefrom on both sides of Massachusetts Avenue to Rindge Avenue

and within the area included between the lines of said Massachusetts Avenue and a line distant one hundred feet to the right and left at right angles from each and every point of said street lines of private ownership on both sides of said Massachusetts Avenue between the westerly side of said railroad location and said Rindge Avenue as aforesaid.

Ninth. — Starting on the westerly line of East Street at the boundary line of the second fire limit district, thence running on said westerly line of East Street to the southerly line of the location of the Southern Division of the Boston & Maine Railroad, thence running westerly on said southerly line of location of said railroad continuously to the Somerville line, thence southerly on said Somerville line to the northerly line of said Bridge Street, thence southeasterly on said northerly line of said Bridge Street continuously to the boundary line of the second fire limit district at Lechmere Square, including all that territory which lies between the said northerly line of Bridge Street and southerly location of said railroad and easterly of that portion of the Somerville line between said Bridge Street and said railroad, extending continuously easterly to said westerly line of East Street, not including, however, any portion of the second fire limit district heretofore established.

Tenth. — Starting at the intersection of the northerly line of Gore Street with the westerly line of Fifth Street and running continuously westerly therefrom on the said northerly line of Gore Street to the Somerville line, and within the area included between the line of private ownership in said Cambridge adjacent to the northerly line of said Gore Street and a line distant one hundred feet to the right at right angles from each and every point of said street lines of said private ownership on the northerly side of Gore Street between said Fifth Street and said Somerville line.

Eleventh. — Starting at the northwesterly extremity of the building line of the third fire limit district on the northerly line of Harvard Street at Smith Square and running continuously therefrom northwesterly on the said northerly line of Harvard Street to the easterly line of Burleigh Street, thence running northerly on said easterly line of Burleigh Street to the southerly line of the fifth fire limit district, thence running northwesterly on said southerly line of the fifth fire limit district to the easterly line of Portland Street, thence running southwesterly on the easterly line of Portland Street to the southerly line of Harvard Street, thence running southeasterly on the southerly line of Harvard Street to the easterly line of Munson Street, thence running southwesterly on said easterly line

of said Munson Street to the northerly line of Hastings Street, thence running southeasterly on the northerly line of Hastings Street and so on continuously in the same direction until it reaches the northerly boundary line of the third fire limit district; and within the areas included between the lines of private ownership adjacent to the said northerly line of Harvard Street to the easterly line of Burleigh Street and the southerly line of Harvard Street and lines within the territory just described respectively one hundred feet to the right of the northerly line of Harvard Street to the easterly line of Burleigh Street and to the left of the southerly line of Harvard Street to the easterly line of Munson Street at right angles from each and every point of all said street lines of private ownership upon said Harvard Street and including all the territory described bounded by Burleigh, Harvard, and Portland streets and the southerly line of the fifth fire limit district and all the territory easterly of said part of said Munson Street to the northerly boundary line of the third fire limit district, not, however, included in any of the third or fifth fire limit districts heretofore established within the territory just described.

Twelfth. — All that territory which lies north of the Boston & Albany Railroad and is bounded easterly by the third fire limit district and westerly by the first fire limit district.

Thirteenth. — All that territory which lies northwesterly of Boylston Street and is bounded northeasterly by Mt. Auburn Street and Brattle Square, northwesterly by Brattle Square and Eliot Square, westerly and southerly by Eliot Square and Eliot Street, not, however, included in the fourth fire limit district heretofore established.

In this ordinance the titles Lafayette Square, Central Square, Putnam Square, Quincy Square and Harvard Square, Lechmere Square, Inman Square, Kendall Square, and Smith Square shall mean the respective areas included within the following boundaries, viz.:

LAFAYETTE SQUARE.

Beginning at a point in the northerly line of Main Street at its intersection with easterly line of Columbia Street; thence southerly by a line at right angles to said line of Main Street seventy feet to its intersection with the southerly line of Main Street; thence westerly along the southerly line of Main Street about three feet to the tangent point of a curve; thence westerly, southerly and easterly along said curve of 18 feet radius about 46.2 feet to its other tangent point in the northeasterly line of Massachusetts Avenue; thence southwesterly by a line at right angles to said line of Massachusetts Avenue about 91 feet

to its intersection with the southwesterly line of Massachusetts Avenue; thence northwesterly along said southwesterly line of Massachusetts Avenue about 202 feet; thence northeasterly by a line at right angles to the southwesterly line of Massachusetts Avenue 103 feet to its intersection with the northeasterly line of said avenue; thence easterly along the northeasterly line of Massachusetts Avenue and the northerly line of Main Street about 179 feet to its intersection with the easterly line of Columbia Street at the point of beginning.

CENTRAL SQUARE.

Beginning at a point in the southwesterly line of Massachusetts Avenue at its intersection with the southerly line of Western Avenue; thence westerly along said southerly line about 124 feet to its intersection with the southeasterly line of Magazine Street; thence southwesterly along said southeasterly line of Magazine Street about 140 feet to its intersection with the southwesterly line of Green Street; thence northwesterly along said southwesterly line of Green Street about 227 feet to its intersection with the northerly line of Western Avenue; thence easterly along said northerly line of Western Avenue about 191 feet to its intersection with the northwesterly line of Central Square; thence northeasterly along said northwesterly line of Central Square about 191 feet to its intersection with the northeasterly line of Massachusetts Avenue; thence southeasterly along said northeasterly line of Massachusetts Avenue about 182 feet; thence southwesterly by a line at right angles to the northeasterly line of Massachusetts Avenue about 103 feet to its intersection with the southwesterly line of Massachusetts Avenue at the point of beginning.

PUTNAM SQUARE.

Beginning at a point in the southwesterly line of Mt. Auburn Street at its intersection with the westerly line of Putnam Avenue; thence northerly along said line of Putnam Avenue 92 feet to its intersection with the southwesterly line of Massachusetts Avenue; thence northeasterly by a line at right angles to said line of Massachusetts Avenue 62 feet to its intersection with the northeasterly line of Massachusetts Avenue; thence southeasterly along said northeasterly line about 215 feet; thence southwesterly by a line at right angles to the southwesterly line of Massachusetts Avenue about 66 feet to its intersection with said southwesterly line; thence along the southwesterly line of Massachusetts Avenue and Mt. Auburn Street about 190 feet to its intersection with the westerly line of Putnam Avenue at the point of beginning.

QUINCY SQUARE.

Beginning at a point in the northeasterly line of Harvard Street at its intersection with the easterly line of Quincy Street; thence southerly along said line of Quincy Street about 211 feet to its intersection with the southwesterly line of Massachusetts Avenue; thence northwesterly along said southwesterly line about 300 feet; thence northeasterly by a line at right angles to said southwesterly line at about 85 feet to its intersection with the northeasterly line of Harvard Street; thence southeasterly along said line of Harvard Street about 198 feet to its intersection with the easterly line of Quincy Street at the point of beginning.

HARVARD SQUARE.

Beginning at a point in the northwesterly line of Massachusetts Avenue at its intersection with the northerly line of Brattle Street; thence in a generally northerly direction along said line of Massachusetts Avenue about 552 feet; thence northeasterly by a line at right angles to the said line of Massachusetts Avenue about 67 feet to its intersection with the northeasterly line of Massachusetts Avenue; thence southerly, easterly and northerly by a curved line of 38 feet radius about 100 feet; thence easterly by a line at right angles to the westerly line of Peabody Street 66 feet to its intersection with the easterly line of Peabody Street; thence southerly along said easterly line about 433 feet; thence southerly and easterly by a curved line of varying radius about 188 feet; thence southwesterly about 88 feet to the intersection of the southwesterly line of Massachusetts Avenue with the northeasterly line of Dunster Street; thence northwesterly along the southwesterly line of Massachusetts Avenue about 218 feet to its intersection with the northwesterly line of Massachusetts Avenue; thence northeasterly along said northwesterly line about 40 feet to its intersection with the northerly line of Brattle Street at the point of beginning.

LECHMERE SQUARE.

Beginning at a point in the southerly line of Cambridge Street at its intersection with the southwesterly line of Bridge Street; thence westerly along said line of Cambridge Street about 343 feet to its intersection with the northwesterly line of Lechmere Square; thence northeasterly along said northwesterly line of Lechmere Square about 219 feet, to its intersection with the northeasterly line of Bridge Street; thence southeasterly along said northeasterly line of Bridge Street about 318 feet, thence southwesterly by a line at right angles to the northeasterly line of Bridge Street about 77 feet to its intersection with the southwesterly line of Bridge Street at the point of beginning.

INMAN SQUARE.

Beginning at a point in the southerly line of Cambridge Street at its intersection with the northeasterly line of Hampshire Street; thence southwesterly by a line at right angles to said line of Hampshire Street 66 feet to its intersection with the southwesterly line of Hampshire Street; thence northwesterly along said line of Hampshire Street about 85 feet to its intersection with the southerly line of Cambridge Street; thence westerly along said southerly line of Cambridge Street about 121 feet; thence northerly by a line at right angle to said line of Cambridge Street 66 feet to its intersection with the northerly line of Cambridge Street, at the tangent point of a curve; thence easterly and northerly along said curve of 1.275 feet radius about 315 feet to its other tangent point in the southwesterly line of Hampshire Street; thence by a line at right angles to said line of Hampshire Street 66 feet to its intersection with the northeasterly line of Hampshire Street; thence southeasterly along said northeasterly line of Hampshire Street about 120 feet to its intersection with the northerly line of Cambridge Street; thence easterly along said northerly line of Cambridge Street 92 feet; thence southwesterly across Cambridge Street about 67 feet to the point of beginning.

KENDALL SQUARE.

Beginning at a point in the northeasterly line of Broadway at its intersection with the northwesterly line of Third Street; thence southeasterly along said line of Broadway about 318 feet to its intersection with the northerly line of Main Street; thence by a line at right angles to said northerly line of Main Street 70 feet to its intersection with the southerly line of Main Street; thence westerly along said southerly line of Main Street about 380 feet to its intersection with the northwesterly line of Third Street produced and extended southerly; thence northeasterly along said extension and northwesterly line of Third Street about 218 feet to its intersection with the northeasterly line of Broadway, at the point of beginning.

SMITH SQUARE.

Beginning at a point in the northeasterly line of Harvard Street, at its intersection with the northwesterly line of Sixth Street; thence southeasterly along said line of Harvard Street about 224 feet to its intersection with the northerly line of Main Street; thence southerly by a line at right angles to said line of Main Street 70 feet to its intersection with the southerly line of Main Street; thence westerly along said southerly line about 223 feet; thence northerly by a line at right angles to said southerly line about 120

feet to its intersection with the southwesterly line of Harvard Street; thence northeasterly by a line at right angles to said southwesterly line of Harvard Street 50 feet to its intersection with the northeasterly line of Harvard Street at the point of beginning.

Every building hereafter erected within the fire limit districts shall be of the first or second class. This restriction shall not apply to wharves, nor to buildings not exceeding twenty-seven feet in height on wharves, nor to market sheds or market buildings not exceeding such height, nor to buildings for the storage of coal, wood, lumber, or grain, if the external parts of said buildings, elevators and structures are covered with slate, tile, metal or other equally fireproof material, and the mode of construction and the location thereof are approved by the Superintendent. Temporary structures to facilitate the prosecution of any authorized work may be erected under such conditions as the Superintendent may prescribe.

SEC. 10.—The provisions of this ordinance shall not apply to bridges, quays or wharves, nor to buildings on land ceded to the United States or owned and occupied by the Commonwealth, nor to the Middlesex County courthouse, jail, house of correction, nor to railroad stations, nor to portable school buildings erected and maintained by the city, nor to voting booths.

Except as otherwise provided by law, the provisions of this ordinance shall not be held to deprive any board or department of the city of Cambridge of any power or authority which they have at the date of the passage of this ordinance, or of the remedies for the enforcement of the orders of said boards or officers, unless said powers, authorities or remedies are inconsistent with the provisions of this ordinance; nor to repeal any existing law or ordinance not herein expressly repealed, except so far as it may be inconsistent with the provisions of this ordinance.

DEFINITIONS.

SEC. 11.—In this ordinance the following terms shall have the meanings respectively assigned to them:

First-class building: A first-class building shall consist of fireproof material throughout, with floors constructed of iron, steel or reinforced concrete beams, filled in between with terra-cotta or other masonry arches or with concrete or reinforced concrete slabs; wood may be used only for under and upper floors, windows and door frames, sashes, doors, interior finish, hand rails for stairs, necessary sleepers bedded in the cement, and for isolated furrings bedded in mortar. There shall be no air space between the top of any floor arches and the floor boarding.

Second-class building: All buildings not of the first class, the external and party walls of which are of brick, stone, iron, steel, concrete, reinforced concrete, concrete blocks, or other equally substantial and fireproof material.

Third-class building: A wooden frame building.

Composite building: A building partly of second-class and partly of third-class construction.

Foundation: That part of a wall below the level of the street curb, or, if a wall is not on a street, that part of the wall below the level of the highest ground next to the wall, or, if so construed by the Superintendent, that part of a party or partition wall below the cellar floor.

Height of a building: The vertical distance of the highest point of the roof above the mean grade of the curbs of all the streets upon which it abuts, and if it does not abut on a street, above the mean grade of the ground adjoining the building.

Party wall: A wall that separates two or more buildings and is used or adapted for the use of more than one building.

Partition wall: An interior wall of masonry in a building.

Thickness of wall: The minimum thickness of such wall.

Story of a building: That part of a building between the top of any floor beams and the top of the floor or roof beams next above.

Basement: That story of a building not more than forty per cent of which is below the grade of the street.

Cellar: That story of a building more than forty per cent of which is below the grade of the street, and in third-class buildings that part of the building which is below the sills or below the first floor beams.

REQUIREMENTS FOR ALL BUILDINGS HERE-AFTER ERECTED OR ALTERED.

SEC. 12. — No building, structure or foundation shall be constructed or altered without a permit, and such work shall be done in accordance with drawings bearing the approval of the Superintendent.

Every structure in process of construction, alteration, repair or removal, and every neighboring structure or portion thereof affected by such process or by any excavation, shall be supported during such process satisfactorily to the Superintendent.

The Superintendent may take such measures as the public safety requires to carry these provisions into effect.

All buildings shall have leaders sufficient to discharge the roof water in such a manner as not to flow upon any public way or any neighboring property. Such leaders may project into a public way not over seven inches, subject to the approval of the Superintendent.

Every chimney flue shall extend at least four feet above the highest point of contact with the roof.

Every permanent building more than twenty feet high having a flat roof shall have permanent means of access to the roof from the inside by an opening not less than two feet by three feet, with a fixed step-ladder.

Every building shall have, with reference to its height, condition, construction, surroundings, character of occupation, and number of occupants, reasonable means of egress in case of fire, satisfactory to the Superintendent, except that in all factories or workshops hereafter built or altered, of second-class construction, where ten or more persons are employed above the third floor, one exit shall consist of a fireproof stairway enclosed in incombustible material.

Water pipes in every building shall be properly protected from frost.

All chimneys of masonry construction shall have walls at least eight inches thick, or be constructed of four-inch brick walls with a suitable flue lining, and plastered on the outside up to the underside of the roof boards.

Every building where persons are employed shall have at least one water-closet for every twenty persons therein employed, and in any building where both sexes are employed, separate accommodations shall be furnished for men and women. Every enclosure containing one or more water-closets shall be provided with ventilation satisfactory to the Superintendent.

In every first-class building and in every second-class building within the fire limit districts, all of the outside finish shall be of incombustible material, except window and door frames, and except finish about show windows. Where store fronts are carried up more than one story the columns and lintels shall be of, or finished with, incombustible material; but in no case shall store fronts be carried more than two stories unless said fronts are constructed and finished throughout with fireproof material, except window and door frames.

Every ventilating flue shall be constructed of, or lined with, incombustible material.

Every floor in second-class buildings shall have its beams tied to the walls and to each other with wrought iron straps or anchors of at least five-eighths square inch area in cross section, and not less than eighteen inches long, so as to form continuous ties across the building. In mill framing each beam is to be so tied, and in other framing the ties are to be not more than ten feet apart. Walls running parallel or nearly parallel with floor beams shall be properly tied once in ten feet to the floor beams by iron straps or anchors of the size above specified.

Every wooden header or trimmer more than four feet long carrying a floor load of over seventy pounds per square foot shall, at connections with other beams be

framed or hung in stirrup irons, and jointbolted. All tail beams and similar beams of wood shall be framed or hung in stirrup irons.

PROHIBITIONS.

SEC. 13.—No wooden building within the fire limit districts shall be so altered or repaired as to increase the fire hazard, nor altered or repaired if the estimated cost of the proposed alterations or repairs exceeds one-half of the cost of a like new building.

No wooden building without the fire limit districts shall be moved to any position within the fire limit districts, and no wooden building within the fire limit districts shall be moved to any position away from the lot upon which it is built or to any position where the fire hazard would be increased.

No recess or chase shall be made in any external or party wall so as to leave the thickness at the back less than eight inches.

No roof or floor timber entering a party wall shall have less than four inches of solid brick work between it and the end of any other timber.

No part of any roof shall be constructed in such a manner as to discharge snow, ice, or other material upon a public street or alley.

No elevated staging or stand for observation purposes shall be constructed or occupied upon the roof of any building.

No chimney shall be corbelled from a wall more than the thickness of the wall.

No chimney shall be hung from a wall which is less than twelve inches thick.

No masonry shall rest upon wood, except piles and mud sills.

No part of any floor timber shall be within two inches of any chimney.

No studding or furring shall be within one inch of any chimney.

No furnace or boiler for heating shall be placed upon a wooden floor.

No smoke pipe shall project through any external wall or window.

No steam, furnace or other hot-air pipes shall be carried within one inch of any woodwork, unless such pipes are double or otherwise protected by incombustible material.

No observation stand shall be constructed or maintained except in accordance with plans approved by the Superintendent.

No closet of any kind shall be constructed under any staircase leading from the cellar or basement to the first story.

No boiler shall be placed or maintained under any public way.

No part of any structure, except cornices, permanent awnings, string courses, window caps and sills, and outside means of egress as otherwise provided, shall project over any public way or square. No cornice shall so project more than three feet, nor more than sixteen inches over a way of a width of thirty feet or less.

No building shall be erected for or converted to use as a stable unless such use is authorized by the Board of Health.

No building shall be erected for or converted to use as a garage unless such use is previously authorized by the Board of Aldermen.

MATERIALS.

STRENGTH OF MATERIALS.

SEC. 14. — The stresses in materials hereafter used in the construction of all buildings, produced by their own weight and the loads herein specified, shall not exceed the limits assigned in the following paragraphs of this section:

(a) TIMBER.

UNIT STRESSES IN POUNDS PER SQUARE INCH.

	Compression Perpendicular to the Grain	Shearing along the Grain	On Extreme Fibre of Beams
White pine and spruce.....	1,000	80	250
White oak.....	1,000	150	600
Yellow pine (long leaved)....	1,500	100	500

Stresses due to transverse loads combined with direct tension or compression shall not exceed the extreme fibre stresses given above.

In computing deflection the modulus of elasticity shall be taken as follows:

	<i>Pounds per square inch.</i>
White pine.....	750,000
Spruce	900,000
Yellow pine (long leaved).....	1,300,000
White oak.....	850,000

Columns (Centrally Loaded).

For wooden columns with flat ends, where L is the length of the column, D is its least diameter, the average

stress per square inch on a cross-section shall be limited as follows:

<i>L</i>	Average stress per square inch:		
<i>D</i>	<i>White pine and spruce.</i>	<i>Long-leaved yellow pine.</i>	<i>White oak.</i>
0 to 10.....	630	900	810
10 to 15.....	595	850	765
15 to 20.....	560	800	720
20 to 25.....	525	750	675
25 to 30.....	490	700	630

No column shall be used with a greater unsupported length than thirty times its least diameter.

For excentric loads, see Section 16.

(b) WROUGHT IRON AND STEEL.

UNIT STRESSES IN POUNDS PER SQUARE INCH.

	<i>Wrought iron. Steel(1).</i>	
Extreme fiber of rolled beams or shapes.....	12,000	16,000
Tension	12,000	16,000
Compression in flanges of built beams	12,000	16,000
Shearing (see below for bolts)....	9,000	10,000
Direct bearing, including pins and rivets.....	15,000	18,000
Bending on pins.....	18,000	22,500
Modulus of elasticity.....	27,000,000	29,000,000

(1) These stresses (except for rivets) are for steel having an ultimate tensile strength of from fifty-five thousand to sixty-five thousand pounds per square inch, an elastic limit of not less than one-half the ultimate strength, and a minimum percentage of elongation in eight inches of one million four hundred thousand, divided by the ultimate strength.

For compression members twelve thousand for iron and sixteen thousand for steel, reduced according to the following formula:

12,000 (or 16,000 for steel).

$$1 + \frac{\frac{L^2}{20,000}}{r^2}$$

in which *L* is the length of the column in inches, and *r* is the radius of gyration in inches taken around the axis about which the column will bend (for free columns, the least radius of gyration).

The stresses due to transverse loads combined with direct tension or compression shall not exceed the extreme fiber stress given above for rolled beams and shapes, or in case of built members the above tension and compression stresses (see Section 16).

Compression flanges of beams shall be proportioned to resist lateral flexure unless properly stayed or secured against it. If the ratio of unsupported length of flange to width of flange does not exceed twenty, no allowance need be made for lateral flexure. If the ratio is seventy, the allowable stress on the extreme fiber shall be one-half of that above specified, and proportionally for intermediate ratios.

Shearing and bearing stresses on bolts shall not be higher than eighty per cent of those allowed by the above table. All connections in skeleton buildings, all splices in steel trusses and girders, and all connections of such trusses and girders to the sides of steel columns shall, if possible, be made by means of rivets rather than by bolts

(c) CAST IRON.

UNIT STRESSES IN POUNDS PER SQUARE INCH.

Extreme fiber stress, tension.....	3,000
Extreme fiber stress, compression.....	16,000

Cast iron shall not be used for columns in buildings of more than seventy-five feet in height, nor in cases where the value of the length divided by least radius of gyration exceeds seventy.

CAST-IRON COLUMNS (CENTRALLY LOADED AND UNSUPPORTED Laterally).

Where the length divided by the least radius of Gyration equals —	Average stress per square inch of section.
10.....	11,000
20.....	10,700
30.....	10,400
40.....	10,100
50.....	9,800
60.....	9,500
70.....	9,200

(d) STONE WORK IN COMPRESSION.

STRESSES IN TONS OF TWO THOUSAND POUNDS PER SQUARE FOOT.

First quality dressed beds and builds, laid solid in mortar of one part Portland cement to three parts sand, or one part natural cement to two parts sand.

Granite	60
Marble and limestone.....	40
Sandstone	30

In cases where poorer mortar is used, to avoid stain from cement, stresses shall be less than above, and must be approved by the Superintendent.

(e) BRICKWORK IN COMPRESSION.

STRESSES IN TONS OF TWO THOUSAND POUNDS PER SQUARE FOOT.

1. For first-class work of hard-burned bricks, including piers in which the height does not exceed six times the least dimension, laid in:

(a) One part Portland cement, three parts sand, by volume, dry.....	20
(b) One part natural cement, two parts sand, by volume, dry.....	18
(c) One part natural cement, one part lime and six parts sand, by volume dry.....	12
(d) Lime mortar, one part lime, six parts sand, by volume, dry.....	8

2. For brick piers of hard-burned bricks in which the height is from six to twelve times the least dimensions:

Mortar (a).....	18
Mortar (b).....	15
Mortar (c).....	10
Mortar (d).....	7

3. For brickwork made of "light-hard" bricks the stresses shall not exceed two-thirds of the stresses for like work of hard-burned bricks.

(f) CONCRETE.

When the structural use of concrete is proposed, a specification stating the quality and proportions of materials, and the methods of mixing the same, shall be submitted to the Superintendent, who may issue a permit at his discretion and under such further conditions, in addition to those stated below, as he sees fit to impose.

(A) In first-class Portland cement concrete, containing one part cement to not more than six parts mixed properly graded aggregate, except in piers or columns of which the height exceeds six times the least dimensions, the compressive stress shall not exceed thirty tons of two thousand pounds per square foot.

(B) In piers and columns of first-class Portland cement concrete, containing one part cement to not more than five parts mixed properly graded aggregate, where the height of the pier or column is more than six times and does not exceed twelve times its least dimensions, the compressive stress shall not exceed twenty-five tons of two thousand pounds per square foot.

By "aggregate" shall be understood all the materials in the concrete except the cement. Cinders concrete shall be used constructively only for floors, roofs and for filling.

Rules for the computation of reinforced concrete columns may be formulated from time to time by the Superintendent, with the approval of the Board of Appeal.

In reinforced concrete beams or slabs subjected to bending stresses, the entire tensile stress shall be assumed to be carried by the steel, which shall not be stressed above the limits allowed for this material. First-class Portland cement concrete in such beams or slabs, containing one part cement to not more than five parts mixed properly graded aggregate, may be stressed in compression to not more than five hundred pounds per square inch. In case a richer concrete is used, this stress may be increased with the approval of the Superintendent to not more than six hundred pounds per square inch.

In reinforced concrete the maximum shearing force upon the concrete when uncombined with compression upon the same plane shall not exceed sixty pounds per square inch, unless the Superintendent, with the consent of the Board of Appeal, shall fix some other value.

If the imbedded steel has no mechanical bond with the concrete, its holding power shall not exceed the allowable shearing strength of the concrete.

(g) IN GENERAL.

Under the prescribed loads beams shall be so proportioned that the deflection shall not exceed one-three-hundred-and-sixtieth (1-360) of the span.

Stresses for materials and forms of material not herein mentioned shall be determined by the Superintendent. Provision for wind bracing shall be made wherever it is necessary, and all buildings shall be constructed of sufficient strength to bear with safety the load intended to be placed thereon, in addition to the weight of the materials used in construction.

No cutting for piping or any other purpose shall be done which would reduce the strength of any part of the structure below what is required by the provisions of this ordinance.

QUALITY OF MATERIALS.

SEC. 15. — All materials shall be of such quality for the purposes for which they are to be used as to insure, in

the judgment of the Superintendent, ample safety and security to life, limb, and neighboring property. The Superintendent shall have power to reject all materials which in his opinion are unsuitable, and may require tests to be made by the owner to determine the strength of the structural materials, and may require certified copies of results of tests made elsewhere from the architect, engineer, builder, owner or other interested persons.

Hollow cast-iron columns, if used, shall be shown by measurements and tests satisfactory to the Superintendent to be of practically uniform thickness and free from blow holes.

MORTARS.

All mortars shall be made with such proportion of sand as will insure a proper degree of cohesion and tenacity and secure thorough adhesion to the material with which they are used, and the Superintendent shall condemn all mortars not so made.

(a) Mortar below the level of water shall be no poorer than one part Portland cement and three parts sand;

(b) Mortar for first-class buildings shall, for the lower half of their height, be no poorer than one part natural cement to two parts sand; and, for the upper half, no poorer than one part of natural cement, one-half part of lime, and three parts of sand;

(c) Mortar for second-class buildings and for such parts of third-class buildings as are below the level of the sidewalk shall be no poorer than one part of natural cement, one of lime, and four of sand;

(d) Mortar for third-class buildings above ground shall be no poorer than one part lime and four parts sand.

The Superintendent may allow lime mortar in setting stone where cement will stain.

Concrete shall be used immediately after mixing; it shall not be placed in the work after it has begun to harden and it shall be deposited in such manner and under such regulations as to secure a compact mass of the best quality for the proportions used. Forms shall remain until the concrete has hardened so as to be able to carry its load safely, and shall be removed without jar.

The Superintendent may require an applicant for a permit for the structural use of concrete to have a competent inspector at all times on the work while concrete is being mixed or deposited, and such inspector shall make daily reports to the Superintendent on the progress of the work.

CEMENT.

Cement shall conform to the specifications of the American Association for Testing Materials, as modified from time to time by that Association.

REINFORCED CONCRETE.

Reinforced concrete slabs, beams or girders, if rendered continuous over supports by being unbroken in section, shall be provided with proper metal reinforcement at the top over said supports and may be computed as continuous beams, as hereinafter described.

The modulus of elasticity of the concrete, if not shown by direct tests, may for beams and slabs be taken as one-fifteenth that of steel, and for columns one-tenth that of steel.

The reinforcing metal shall be covered by not less than three-fourths inch of concrete in slabs, and by not less than one and one-half inches of concrete in beams and columns.

METHODS OF COMPUTATION.

SEC. 16.—Beams or girders of metal or reinforced concrete shall be considered as simply supported at their ends, except when they extend with unbroken cross-section over the supports, in which case they may be considered as continuous.

The span of a beam shall be considered as the distance from center to center of the bed plates or surfaces upon which it rests. If it is fastened to the side of a column, the span shall be measured to the center of the column.

In slabs, beams, or girders continuous over supports, provision shall be made for a negative bending moment at such supports equal to four-fifths of the positive bending moment that would exist at the center of the span if the piece were simply supported; and the positive bending moment at the center of the span may be taken equal to the negative bending moment at the support.

In the case of a slab of reinforced concrete with parallel ribs or girders beneath, the rib or girder may be considered to include a portion of the slab between the ribs, forming a T-beam. The width of the T-beam on top shall not exceed one-third the span of the rib nor the distance from center to center of the ribs.

Reinforced concrete columns shall be proportioned on the assumption that the concrete and the steel are shortened in length in the same proportion. The steel members shall be tied together at intervals sufficiently short to prevent buckling.

If a column is loaded excentrically or transversely, the maximum fiber stress, taking account of the direct compression, the bending which it causes, its excentricity and the transverse load, shall not exceed the maximum allowable stress in compression.

If a tension piece is loaded excentrically or transversely, the maximum fiber stress, taking account of the direct tension, its excentricity and the transverse load, shall not exceed the maximum allowable stress in tension.

An excentric load upon a column shall be considered to affect excentrically only the length of column extending to the next point below at which the column is held securely in the direction of the excentricity.

If a piece is exposed to tension and compression at different times, it shall be proportioned to resist the maximum of each kind, but the unit stresses shall be less than those used for stress of one kind, depending upon the ratio and the relative frequency of the two maxima.

Net sections shall be used in proportioning steel tension members, and in deducting rivet holes they shall be taken as one-eighth of an inch greater in diameter than the rivets.

The length of a steel compression member between supports in any direction shall not exceed one hundred and twenty times its radius of gyration about an axis perpendicular to that direction.

The webs of plate girders shall be proportioned to resist buckling in cases where they are not supported laterally, according to the formula:

$$16,000$$

$$1 + \frac{1}{3,000} \frac{d^2}{t^2}$$

in which t equals thickness of web in inches; d equals clear, unsupported dimension horizontally or vertically, whichever is the lesser.

In proportioning the flanges of plate girders, one-eighth of the gross area of the web may be considered as available in each flange. If the length of the top flange unsupported laterally exceeds twenty times its width, the allowable stress shall be reduced, as in the case of rolled beams.

Pins shall be computed by assuming the forces in the bars to act at the center of the bearing areas.

In riveted trusses the center of gravity lines of members coming together at a joint shall, if possible, intersect at a point. Excentricity due to a non-fulfillment of this rule shall be allowed for in the computations. The center of gravity of the rivets connecting one piece to another shall, in general, lie as nearly as practicable in the center of gravity line of the piece.

CLASSIFICATION.

SEC. 17. — Every building over seventy-five feet in height hereafter erected or raised shall be constructed as a first-class building.

RESTRICTION OF AREAS.

Any first-class building hereafter erected to be used above the first floor as a warehouse or store for the storage

or sale of merchandise shall have all vertical openings for elevators and stairways, air or light shafts through the floors protected by fireproof enclosures, with incombustible sash, doors and frames. Such enclosures shall, if enclosing stairs or escalators, have automatic doors and all glass in said enclosures shall be wire glass.

Second-class buildings used for houses for habitation shall be so divided by brick walls that no space inside such buildings shall exceed in area four thousand square feet. Said walls may be partition walls which shall be built to the underside of the roof boards.

Every second-class building more than three stories high and used above the first floor as a warehouse or store for the storage or sale of merchandise shall have all vertical openings for elevators and stairways, air or light shafts, through its floors protected by fireproof enclosures. Such enclosures shall be supported on fireproof supports and framing, and shall, if enclosing stairs or escalators, have automatic doors, and all glass in said enclosures shall be wire glass.

No building used above the first floor for the storage or sale of merchandise shall have less than two means of egress from every story, one of which means may be either an outside fire escape or through a brick wall closed by automatic doors into a building of the same class; except that an independent monumental stairway extending from the basement to the second floor may be constructed. If both stairs are inside the building, one shall be enclosed in walls of incombustible material and all doors therein shall open outward.

BUILDING FOR MANUFACTURING PURPOSES.

Wooden buildings outside the fire limit districts and adapted exclusively for manufacturing, storage, exhibition, mechanical, or stable purposes, may be built of unlimited area under such conditions as the Superintendent shall prescribe, but shall not exceed forty-five feet in height. The area of such buildings shall be so divided by brick walls constructed as party walls that no area within such walls shall exceed twenty-five thousand square feet if one story high nor twelve thousand square feet if more than one story.

CONSTRUCTION.

HEIGHT.

SEC. 18. — No building, structure, or part thereof shall be of a height exceeding two and one-half times the width of the widest street on which the building or structure stands, whether such street is a public street or place or a private way, nor exceeding one hundred and twenty-five

feet in any case. The width of such street, place or private way shall be measured from the face of the building or structure to the line of the street on the other side. If the street is of uneven width, the width shall be the average width of the part of the street opposite the building or structure; if the effective width of the street is increased by an area or setback, the space between the face of the main building and the lawfully established line of the street may be built upon to the height of two and one-half times the width of the street.

Except that the limitation of the height of buildings shall not apply to churches, steeples, towers, domes, cupolas, belfries, statuary, pipes, water tanks, elevator houses, gas holders, coal or grain elevators, balustrades or parapets, skylights, ventilators, houses not exceeding twelve feet square and twelve feet in height, or other ornamental or similar constructions such as are usually erected above the roof line of buildings, any of which may be carried to a greater height than one hundred and twenty-five feet.

EXCAVATIONS.

SEC. 19. — All excavations shall be so protected, by sheet piling if necessary, by the persons causing the same to be made, that the adjoining soil or foundation shall not cave in by reason of its own weight. It shall be the duty of the owner of every building to furnish, or cause to be furnished, such support that his building shall not be endangered by any excavation, unless said excavation is carried more than ten feet below the grade of the principal street. All permanent excavations shall be protected by retaining walls. In case of any failure to comply with the provisions of this section, the Superintendent may enter upon the premises and may furnish at the expense of the owner such support as the circumstances may require.

PILING.

SEC. 20. — All buildings shall, if the Superintendent determines that piling is necessary, be constructed on foundation piles, and the number, diameter and bearing of such piles shall be sufficient to support the superstructure proposed. The Superintendent shall determine the grade at which the piles shall be cut. He may require any applicant for a permit to ascertain by boring the nature of the ground on which it is proposed to build, and he may require a competent inspector satisfactory to him to be at all times on the work while piles are being driven, who shall keep an accurate record of the length of each pile, the weight and fall of the hammer, and the penetration of each pile for each of the last two blows of the hammer.

Plain concrete piles shall be made in place by methods which are reasonably certain to secure perfect, full-sized piles. Reinforced concrete piles, if properly designed to resist the shock of driving, and if driven with a cushion to lessen the shock, or by a water jet, may be molded, allowed to harden, and then driven in place.

In case concrete piles are used, whether reinforced or not, their bearing power shall be determined by putting in one or more test piles and loading them after the concrete has hardened. The load allowed shall not be more than one-half of the load under which the pile begins to settle. In no case, however, shall the load on a concrete pile exceed that specified herein for concrete in columns. Concrete for piles shall have not more than five parts of properly made and mixed aggregate to one part of Portland cement; and the aggregate shall all be capable of passing through a one-inch ring.

All wood piles shall be capped with block granite levelers, each leveler having a firm bearing on the pile or piles which it covers, or with first-class Portland cement concrete, not less than sixteen inches thick, above the pile caps, containing one part of cement to not more than six parts of properly ground aggregate of stone and sand, the concrete to be filled in around the pile heads upon the intervening earth.

FOUNDATIONS OF FIRST AND SECOND-CLASS BUILDINGS.

SEC. 21. — Foundations of first and second-class buildings may be of brick, stone or concrete. The thickness shall be as stated in Section 23. Foundations of rubble stone shall be allowed only under buildings less than fifty feet in height and for a depth of less than ten feet.

The walls and piers of every building shall have a foundation, the bearing of which shall be not less than four feet below any adjoining surface exposed to the frost, and such foundation, with the superstructure which it supports, shall not overload the material on which it rests.

CELLARS.

SEC. 22. — The cellar of every building hereafter built, where the grade or nature of the ground so requires, shall be sufficiently protected from water and damp by a bed at least two inches thick over the whole, of concrete, cement and gravel, tar and gravel, or asphalt, or by bricks laid in cement. No cellar or basement floor of any building shall be constructed below the grade of twelve feet above mean low water, unless such cellar is made waterproof to the satisfaction of the Superintendent. All metal foundations and all constructional metal work underground shall be protected from dampness by concrete, or by other material approved by the Superintendent.

THICKNESS OF WALLS.

SEC. 23. — The external walls above the foundation of houses for habitation of first or second-class construction and not exceeding sixteen hundred square feet in area and not over three stories high, shall be not less than eight inches thick for external walls and not less than twelve inches thick for party walls.

The external and party walls for houses for habitation not exceeding four stories or fifty feet in height shall be not less than twelve inches thick; said walls for said buildings not exceeding five stories or sixty feet in height, shall be not less than sixteen inches thick to the top of the first floor and not less than twelve inches thick above; said walls in said buildings not exceeding six stories or seventy-five feet in height shall be not less than sixteen inches thick to the top of the second floor and not less than twelve inches thick above.

In all buildings, partition walls which do not carry floor loads may be made four inches less in thickness than is required for external and party walls for houses for habitation.

Except as above stated, the external and party walls of every building of the first and second class shall be twelve inches thick in the upper two stories of the height of said wall, not exceeding twenty-five feet in height. In the section of two stories, but not exceeding twenty-five feet next below, the walls shall be sixteen inches thick. In the next lower section of three stories, but not exceeding thirty-seven feet, the walls shall be twenty inches thick, and in each succeeding section of three stories, but not exceeding thirty-seven feet or any part thereof, the walls shall be four inches thicker than the section next above it.

Foundation walls of rubble shall be at least twelve inches thicker than the walls they sustain, and foundation walls of other materials shall be at least four inches thicker than the required thickness of the walls of the first story. All foundation walls more than two stories or twenty feet deep, shall be increased four inches in thickness for every added depth of two stories or twenty feet, or any part thereof. The thickness herein given shall apply to all masonry walls unless they are reinforced by a frame or skeleton of steel.

In reckoning the thickness of walls, ashlar shall not be included unless the walls are at least sixteen inches thick and the ashlar is at least eight inches thick, or unless alternate courses are at least four and eight inches to allow bonding with the backing. Ashlar shall be properly held by metal clamps to the backing or properly bonded to the same.

Provided, however, that nothing herein contained shall prohibit the use of a mill construction for exterior walls, consisting of piers properly proportioned to sustain all the loads and connected by curtain walls, if the dimensions of all parts of the construction are made satisfactory to the Superintendent.

Parapet walls shall be at least eight inches thick above roof.

ANCHORS.

SEC. 24. — All walls of a first or second class building meeting at an angle shall be securely bonded, or shall be united every five feet of their height by anchors made of at least two inches by half an inch of steel or wrought iron, well painted, and securely built into the side of partition walls not less than thirty-six inches, and into the front and rear walls at least one-half the thickness of such walls.

BRICKWORK — BONDING.

SEC. 25. — Every eighth course, at least, of a brick wall shall be a full heading or bonding course, except where walls are faced with face brick, in which case in every eighth course at least every other brick shall be a full header. No diagonal header ties shall be used.

VAULTED WALLS.

SEC. 26. — If the air spaces are headed over and the walls are built solid for at least three courses below the floor and roof beams, walls, if of brick, may be built hollow. They shall contain, exclusive of withes, the same amount of material as is required for solid walls, and the masonry on the inside of the air space in walls over two stories in height shall be not less than eight inches thick and the parts on either side shall be securely tied together with ties not more than two feet apart in each direction.

WALLS FRAMED WITH IRON OR STEEL.

SEC. 27. — Walls may be built in part of iron or steel or with a reinforced concrete or metal frame work. In such metal frame work the beams and girders shall be riveted to each other at their respective junction points. If columns made of rolled iron or steel are used, their different parts shall be riveted to each other, and the beams and girders resting upon them shall, if possible, have riveted connections to unite them with the columns. If cast-iron columns are used, each successive column shall be bolted to the one below it by at least four bolts not less than three-fourths of an inch in diameter, and the beams and girders shall be bolted to the columns. At each line of floor or roof beams, lateral connections between the ends of the beams and girders shall be made

in such manner as rigidly to connect the beams and girders with each other in the direction of their length.

All party walls of skeleton construction shall have curtain walls not less than twelve inches thick.

All outside walls of skeleton construction shall have curtain walls which may be of masonry, terra-cotta, concrete, or reinforced concrete, constructed and supported under such conditions as the Superintendent shall prescribe.

If the metal or other framework is so designed that the enclosing walls do not carry the weight of floors or roof, then the walls shall be of masonry or concrete construction and shall be thoroughly anchored to the iron skeleton, and whenever the weight of such walls rests upon beams or columns, such beams or columns shall be made strong enough in each story to carry the weight of wall resting upon them without reliance upon the walls below them.

PARTY WALLS ABOVE ROOF.

SEC. 28. — Except as hereafter provided, in buildings less than fifty feet in height all party walls shall be built to a height at least twelve inches above the roof covering, and shall be capped with stone, cement or metal securely fastened to the masonry. In all other buildings such walls shall be carried thirty inches above the roof.

WALLS — CORNICES.

SEC. 29. — Where a wall is finished with a stone cornice, the greatest weight of material of such cornice shall be on the inside of the face of the wall. All cornices of second-class buildings within the fire limits shall be of brick or covered with fireproof material, and the walls shall be carried up to the boarding of the roof; and where the cornice projects above the roof the masonry shall be carried up to the top of the cornice and covered with metal, like parapet walls.

PIERS AND HEARTHES.

SEC. 30. — Piers and walls shall have caps or plates of iron or stone where they are needed, sufficient properly to distribute the load.

Hearths shall be supported by trimmer arches of brick or stone; or shall be of single stones at least six inches thick, built into the chimney and supported by iron beams, one end of which shall be securely built into the masonry of a chimney or of an adjoining wall, or which shall otherwise rest upon an incombustible support. Rough brick jambs of every fireplace, range or grate opening shall each be at least eight inches wide, and the backs of such openings shall be at least eight inches thick, but four inches of this backing may be the finished fireplace. Hearths and trimmer arches shall be at least twelve inches

longer on either side than the width of such openings, and at least eighteen inches wide in front of the chimney breast. Brickwork over fireplaces and grate openings shall be supported by proper iron bars, or brick or stone arches.

WALLS — DOORWAYS IN PARTY AND PARTITION WALLS.

SEC. 31. — Openings for doorways in party walls shall not exceed one hundred square feet each in area, and each opening shall have two sets of fireproof doors and frames separated by the thickness of the wall, hung in a manner satisfactory to the Superintendent, except that the aggregate width of all openings in any story shall not exceed fifty per cent of the length of the wall in which such openings occur. Openings, not exceeding one hundred and forty-four square inches, constructed and protected as shall be approved by a writing signed by the Superintendent, may be permitted in any wall on floor.

Openings in partition wall in houses for habitation shall be protected by single fireproof doors and frames, hung in a manner satisfactory to the Superintendent.

FIRE PROTECTION.

SEC. 32. — All structural metal supporting or forming part of the frame, floors, roof or columns of any building, except as otherwise exempted in this ordinance, shall be protected against the effect of heat.

This protection shall consist of concrete, or of porous terra-cotta or brick set in cement mortar. When block construction is used, it shall be clamped in place with steel clamps, or wrapped securely with No. 12 galvanized-iron wire or metal lathing in such manner as to hold each block in place, and shall be plastered with lime or other mortar at least three-fourths of an inch thick in addition to the protection.

The protection on all floor and roof beams shall be at least one inch thick, on all floor and roof girders and on all beams carrying masonry at least one inch thick on top and two inches thick elsewhere, on all columns carrying only floors three inches, and on all columns built into or carrying walls four inches.

If terra-cotta blocks are used for protection, such blocks may be hollow, but each face shall be solid, and no flange shall be less than one inch thick.

Plaster on wire or metal lath shall not be considered as a fire protection for steel or iron structural members, but may be used with an air space under arches as a suspended ceiling, provided that such arches have at least one inch of thickness of fireproofing under the flanges in addition to such ceiling, and that the metal lath and plaster are suspended separately from the arches and are not less than one inch below the same.

All protection shall be applied directly to the metal work and shall not be broken into nor interrupted by any pipes, wires, chases or conduits of any kind.

About isolated columns on the exterior of buildings the thickness of protection may be reduced to one inch, when the same is covered with an outer shell of cast iron or steel.

When a column or girder is formed of built-up shapes, the spaces between flanges shall be filled solid with protecting material, but this protection need not extend more than one inch beyond the edges of projecting angles, bars or channels. The protection shall cover all lugs, brackets, braces, etc.

The metal work of all trusses carrying masonry or floor loads shall be protected, as hereinbefore described, but said provisions shall not apply to trusses which carry roof load only.

When a wall or partition is formed with a framework of angles, channels or other built-up shapes, and such wall or partition is filled in flush with both faces of the frame with terra-cotta blocks, additional protection may be omitted.

With the approval of the Superintendent, the above requirements as to fireproofing shall not apply to iron or steel in second or third class buildings in any case in which the use of wood without fire protection would be permissible under this ordinance.

In work in connection with alterations of existing buildings, the character and amount of protection for steel and iron work shall be made satisfactory to the Superintendent.

In positions where the protection of isolated or exposed columns is likely to be broken or damaged there shall be outside of the protection a casing at least five feet high of iron or wood, bound with wire or steel so as to be self-supporting.

Spaces between and behind all furring and all studding of bearing partitions shall be filled solid with bricks and mortar or other fireproof material for a space of five inches in height above the floor beams or plaster grounds. Spaces between the strap furring on brick walls shall be filled solid with mortar for five inches below the bottom of the floor beams. The spaces between stringers of stairs and joists of landings, unless unceiled or of fireproof construction, shall be stopped solid with brick, terra-cotta or other incombustible material as often as twice in each flight of stairs. The spaces between floor beams on bearing partitions shall be stopped in a similar manner.

The tops of all heating furnaces and smoke pipes shall be at least one foot below the nearest wooden beams or ceiling. All ceilings immediately over a furnace or boiler and for two feet on each side thereof, and all ceilings within one foot of indirect radiators, shall, except under

fireproof floors, be metal lathed and plastered, or have other protection satisfactory to the Superintendent.

All hot-air register boxes in the floors or partitions of buildings shall be set in soapstone or equally fireproof borders not less than two inches in width, shall be made of tin plate, and shall have double pipes and boxes properly fitted to the soapstone. Hot-air pipes and register boxes shall be at least one inch from any woodwork, and their connecting pipes shall be two inches from any woodwork. If indirect hot water or indirect steam heat is used, the Superintendent may modify or dispense with the foregoing requirements.

FIREPROOF PARTITIONS.

SEC. 33. — Partitions in buildings of first-class construction shall be constructed of plastering applied to metal lathing or to plaster boards, or constructed of brick or of hollow blocks composed of cement, plaster or terracotta. When block construction is used, it shall be self-supporting above all openings, thoroughly bonded and set in Portland cement. The blocks shall start from the floor and shall be continuous to the floor above, except that in the upper story, where there is a space between the ceiling of the top story and the roof, these partitions need not extend above the ceiling. If plastered on both sides the blocks shall be not less than four inches thick for a partition not more than fifteen feet in height, and shall be thickened one inch for every additional eight feet or fraction thereof in height. The thickness of webs shall be not less than three-fourths of an inch.

If partitions are not plastered on both sides, the thickness of blocks shall be one inch greater than as specified above.

TIMBERS IN WALLS OF SECOND-CLASS BUILDINGS.

SEC. 34. — The ends of all wooden floor or roof beams in second-class buildings shall enter the wall to a depth of at least four inches. When the wall is eight inches thick it shall be corbelled or the beams shall be hung in metal hangers; and the ends of all such beams shall so be shaped or arranged that in case of fire they may fall without injury to the wall.

ALTERATIONS OF EXISTING BUILDINGS.

SEC. 35. — Except as otherwise provided in Section 13, any building may be altered, remodeled or enlarged for use as a house for habitation.

The first story or basement, or both the first story and basement, in such buildings, may be used for mercantile purposes, as provided in Section 53.

The height of any such building shall not be increased unless the walls and foundations conform to the provisions of this ordinance.

Every such building, more than forty feet in height, so altered, remodeled or enlarged, shall be provided with at least two independent exits satisfactory to the Superintendent.

Any such building so altered, remodeled or enlarged as a house of habitation for more than two families shall have the same exposure and yards as is hereinafter provided for tenement houses.

If in the opinion of the Superintendent, the alteration proposed to be made in a building is of such extent as, when done, to produce a practically new structure or to impair the stability or increase the fire risk of the structure as a whole, then the whole structure shall be made to conform to the provisions of this ordinance for a new structure of the same class. A building damaged by fire or other casualty may be repaired or restored so as to conform to its original condition, or may be reconstructed in some or all of its parts as the Superintendent may specify in his permit.

Except as otherwise provided for tenement houses, every living-room in a building hereafter adapted for habitation shall have a window on the open air of an area not less than ten square feet and distant not less than six feet from any opposite wall, or three feet from the lot line.

FLOORS — LOADS.

SEC. 36. — All new or renewed floors and stairs shall be so constructed as to carry safely the weight to which the proposed use of the building may subject them, and every permit granted shall state for what purpose the building is designed to be used; but the least capacity per superficial square foot, exclusive of materials, shall be:

For floors of houses for habitation, fifty pounds.

For office floors and for public rooms of hotels, one hundred pounds.

For floors of retail stores and public buildings, except schoolhouses, or for light manufacturing, one hundred and twenty-five pounds.

For floors of schoolhouses, other than floors of assembly rooms, eighty pounds, and for floors of assembly rooms, one hundred and twenty-five pounds.

For floors of drill rooms and riding schools, two hundred pounds.

For floors of warehouses, at least two hundred and fifty pounds.

For flat roofs, forty pounds.

For stairs, landings, platforms and fire escapes, seventy pounds.

The loads not included in this classification shall be determined by the Superintendent.

The full floor load specified in this section shall be included in proportioning all parts of buildings designed for warehouses, or for heavy mercantile and manufacturing purposes. In other buildings, however, reductions may be allowed, as follows: For girders carrying more than one hundred square feet of floor, the live load may be reduced ten per cent. For columns, piers, walls and other parts carrying two floors, a reduction of fifteen per cent of the total live load may be made; where three floors are carried, the total live load may be reduced by twenty per cent; four floors, twenty-five per cent; five floors, thirty per cent; six floors, thirty-five per cent; seven floors, forty per cent; eight floors, forty-five per cent; nine or more floors, fifty per cent.

The Superintendent may prescribe the maximum loads which may be imposed upon the floors of existing buildings.

The Superintendent shall prescribe the details of construction of all fire escapes.

SHUTTERS.

SEC. 37. — In all first or second class mercantile or manufacturing buildings over thirty feet in height, outside openings in party walls, or in any rear or side wall within twenty feet of an opposite wall or building, shall have metal frames and sashes, and shall be glazed with wire glass, or shall be protected by shutters. Such shutters shall be covered on both sides with tin, or shall be made of other substantial fireproof material, and hung on the outside, either upon independent metal frames or upon metal hinges attached to the masonry, and shall be made to be handled from the outside and one such shutter in each room shall have a protected hand-hole eight inches in diameter.

ELEVATORS.

SEC. 38. — Elevators and hoists for freight which do not run above the first story may be constructed without fireproof enclosures. Freight and passenger elevators may be placed in areas or hallways where the same are continuous and unbroken, such elevators to be protected by metal grille. In all buildings more than three stories in height, except as above provided, all shafts for elevators, hoists and lifts shall be constructed of fireproof material. All light and ventilating shafts, air ducts and dumb waiters more than twenty-eight inches square, extending above one story, shall be constructed of or lined with incombustible material in a manner approved by the Superintendent. The tops of all such shafts shall be covered with incombustible material unless the shaft extends above

the upper floor of the building, and in that case the shaft shall be carried at least three feet above the roof and shall be covered with a skylight. Such shafts, if for freight or for passenger elevators, shall be of brick at least eight inches thick, or of metal covered on both sides with at least one inch of plaster applied immediately to the metal, or of some other equally substantial fireproof material.

Every opening into a shaft or hoistway shall be protected by self-closing gates, rails, trap-doors, or other equivalent devices.

Every elevator shall be provided with a safety attachment to prevent the falling of the car. The machinery over the elevator shall have underneath it a grille sufficient to protect the car from falling material.

Every opening into an elevator shaft or hoistway and every opening through a floor, other than a stairway, shall be closed when not in use.

All elevator shaft openings, other than openings into passenger elevator shafts, shall be furnished with three-ply metal-covered or incombustible doors, hung in a manner satisfactory to the Superintendent, and shall be provided with iron thresholds. Wire glass panels may be used in such doors. Outside windows or openings of every elevator shaft other than shipping doors shall have three vertical iron rods, painted red, equally spaced off in such window opening.

The space between the car of a passenger elevator and door of each landing shall be not more than two inches.

No elevator shall be used in any building until the same is approved in writing by the Superintendent.

In case any freight or passenger elevator is not constructed or furnished in compliance with this ordinance, or has become unsafe, the Superintendent shall post a conspicuous warning and prohibition at each entrance to such elevator. It shall thereafter, until a new written permit is given by the Superintendent, be a penal offence hereunder to operate the said elevator, or to remove or deface the said notice.

Freight elevator wells hereafter built on the line of the external wall of a building shall be so constructed that there shall be no recess in the outer wall along the whole line of the same, and that no more than two inches space shall be allowed between the platform of the car and the outer wall. The side of the platform and the line of the doorway shall be flush with the well-way, and the door openings from the said elevator well into the building shall be placed back from the face of the well, so as to allow space enough for self-closing gates to operate between the door and the well opening. Outside openings to freight elevators shall be protected by self-closing slatted gates, "vertical" with spaces not wider than two inches between the slats.

If any accident shall occur to any elevator affecting life or limb or damaging any part of the machinery or running parts of the elevator, it shall be the duty of the person in charge, immediately, before any repairs are made, or any broken pieces are removed, to notify the Superintendent of the accident, before the elevator is operated again, so that the cause of the accident may be determined, any faulty construction remedied, and satisfactory repairs made.

All manufacturers of elevators shall be required to test, in the presence of an inspector, the safety devices of every elevator installed before the same is turned over to the owners for use, and the Superintendent shall be notified by the manufacturer at least twenty-four hours before such test is made. An inspector may require a test of the safety device of any elevator if in his judgment the same is required.

The Superintendent may require additional safeguards on elevators, if in his judgment the condition, use or surroundings of the elevator demand them.

The Superintendent shall inspect all freight and passenger elevators twice each year, and no elevator shall be operated more than six months without a permit from the Superintendent.

WOODEN BUILDINGS.

SEC. 39. — Every wooden building hereafter erected shall have a foundation of concrete, rubble, block granite or brick, laid in mortar or other equally substantial material carried to the surface of the ground. Every such foundation, if of brick or concrete, shall be at least twelve inches thick; if of granite, shall be at least sixteen inches thick; if of rubble, shall be at least twenty inches thick at the bottom, tapering to sixteen inches at the top; and shall be laid at least four feet below any surface exposed to frost and upon solid ground or upon piles properly spaced.

Every wooden building hereafter erected or altered, the sills of which do not rest directly upon a foundation as above described, but on an underpinning, shall have such underpinning made of brick, stone or concrete; and if the building is forty feet or less in height above the highest street level of its principal front, the underpinning, if of brick or concrete, shall be at least eight inches thick, and if the building is of greater height, the underpinning, if of brick or concrete, shall be at least twelve inches thick; every underpinning of stone shall be at least sixteen inches thick. Every wooden building hereafter erected or altered and used for a workshop or other like purpose, or as a temporary structure, may, if the Superintendent approves, rest upon mud sills or blocks, or on piles.

Every wooden building exceeding fifteen feet in height hereafter erected or altered shall have all its parts of sufficient strength to carry the weight of the superstructure; shall be built with sills, posts, girts, studs and plates, properly framed, mortised, tenoned, braced and pinned in each story, or with a balloon frame; the posts and girts shall be not less than four by six inches in cross-section, and the studs shall be not more than twenty inches apart. Wooden buildings hereafter erected or altered for other purposes than habitation shall not be situated within three feet of the line of the lot unless the side wall on such line or lines be of brick or concrete, built to the under side of the roof.

SEC. 40. — No wooden building hereafter erected or altered to be used as a habitation shall be more than three stories in height above the basement, nor more than fifty feet in height above the street level, nor shall any part of said building, except the eaves and cornice, be nearer than three feet to the line of any adjoining lot, or nearer than six feet to any other building on the same lot, unless the side wall of such adjoining building is constructed as a solid wall of brick or concrete or other incombustible material not less than eight inches thick, and carried twelve inches above the roof.

All wooden buildings hereafter constructed to form a block of two or more houses shall have a brick or concrete party wall between adjoining houses, which shall be not less than eight inches thick, shall be carried twelve inches above the roof, and shall be capped with a covering of stone, cement or metal securely fastened to the masonry.

Except that if the roof is pitched at an angle of over twenty degrees the wall may stop at the under side of the roof boards.

FLOORING DURING CONSTRUCTION.

SEC. 41. — If, in the erection of an iron or steel frame building, the spaces between the girders or floor beams of a floor are not filled and covered by the permanent construction of such floors before another story is added to the building, such provision shall be made to protect the workmen from falling materials as shall be satisfactory to the Superintendent.

ADDITIONAL REQUIREMENTS FOR TENEMENT HOUSES.

DEFINITIONS.

SEC. 42. — Certain words are defined as follows:

1. A tenement house is any house, building, structure or portion thereof, occupied, or adapted for occupation, as

a dwelling by more than three families living independently of one another and doing their cooking upon the premises, or by more than two families above the first story so living and cooking. A family living in a tenement house may consist of one or more persons.

2. A court is an open unoccupied space other than a yard on the same lot with a building. An inner court is a court not extending to a street, or alley, or open passageway, or yard. An outer court is a court extending to a street, or alley, or open passageway, or yard. A vent court is an inner court for the lighting and ventilation of water-closets, bathrooms, public halls and stair halls only. An intake is a passageway connecting an inner court with a street, or alley, or open passageway, or yard.

3. A public hall is a hall, corridor or passageway not within an apartment.

4. A stair hall includes the stairs, stair landings and those parts of the public hall through which it is necessary to pass in going from the entrance floor to the roof.

5. An apartment is a room, or suite of two or more rooms, occupied, or suitable for occupation, as a residence for one family.

6. An alcove is a portion of an apartment separated from an adjoining room by a partition, with an opening between the two of an area equal to not over sixty per cent of the separating partition.

EXISTING BUILDINGS.

SEC. 43. — Nothing herein contained unless herein otherwise provided shall be construed as requiring any alterations to be made of existing buildings which have been erected in conformity with the laws in force at the time the permits for same were granted.

FIRE-ESCAPES.

SEC. 44. — In all tenement houses hereafter erected more than two stories in height above the basement or cellar there shall be provided at least two independent means of egress, accessible from each apartment above the first floor, one of which shall be one of the following means of egress for escape from fire: (1) An interior enclosed stairway as described in this section; or (2) an exterior iron fire-escape and stairs as hereinafter described; or (3) iron balconies connecting with adjoining houses, or with adjoining parts of the same house separated from each other by a brick partition wall in which there are no openings except such as are protected with fireproof self-closing doors.

1. Interior fire-escapes may consist of wooden or other stairs. Such stairs shall extend from the top floor to the level of the entrance floor or basement, where they shall

open into either an outer or an inner court or a yard or a public or private way. These stairs and entrance halls connecting therewith shall be enclosed in the basement by brick walls at least eight inches thick, and the stairs and entrance halls connecting therewith above the basement shall be enclosed with fireproof partitions to the under side of the roof boards and shall have on each floor, in a public hall accessible from each apartment, a fireproof self-closing door and fireproof frame; such staircase to be provided with a ventilating skylight at least nine square feet in area. The soffits of the stairs and all landings within staircase enclosure, the ceiling of the entrance halls and the basement ceiling under same, if they are of wood, shall be plastered on metal lathing. No lock shall be placed on any skylight, but it may be fastened on the inside by movable bolts or hooks.

2. Exterior fire-escapes shall be of iron, with iron grated floor, and capable of bearing a load of seventy pounds per square foot. The stair treads shall be of iron, and the pitch of the stairs shall not exceed forty-five degrees.

Balconies shall be at least three feet four inches wide, and the stairs at least twenty inches. There shall be a landing at the foot of each flight, and at the level of the second floor there shall be cantilever ladders, or other safe means for reaching the ground. The rails on horizontal balconies and on the stairs shall be at least two feet ten inches high at all points.

3. Balconies connecting adjoining houses, or adjoining parts of the same house as described above, shall be not less than thirty inches wide and capable of sustaining a load of seventy pounds per square foot. Railings shall be not less than two feet ten inches high, and shall be of iron.

All exterior fire-escapes and balconies shall be built in accordance with specifications furnished by the Superintendent.

BULKHEADS AND SCUTTLES.

SEC. 45. — Every tenement house hereafter erected shall have in the roof a bulkhead or scuttle. No scuttle shall be less in size than two feet by three feet, and all scuttles shall be covered on the outside with metal, and shall be provided with stairs or stationary ladders leading thereto and easily accessible to all tenants of the building, and kept free from encumbrance, and ready for use at all times. All scuttles required in this ordinance shall be in the ceiling of the public hall on the top floor, and access through the scuttle to the roof shall be direct and uninterrupted. Scuttles shall be hinged so as to readily open. Every bulkhead hereafter constructed in a tenement house shall have stairs with a guide or hand rail leading to the

roof, and shall be kept free from encumbrance and ready for use at all times. No lock shall be placed on any skylight, scuttle or bulkhead door, but either may be fastened on the inside by movable bolts or hooks. All key-locks on scuttles and on bulkhead doors shall be removed. No stairway leading to the roof in a tenement house shall be removed.

STAIR HALLS — HOW ENCLOSED.

SEC. 46. — In second and third class tenement houses hereafter erected, the stair halls other than those about interior fire-escapes described in Section 44 may be enclosed with wooden stud partitions plastered on wooden laths.

In third-class tenement houses hereafter erected, the interior fire-escapes described in Section 44 may be enclosed with wooden stud partitions if such partitions are covered on both sides with metal laths or with good quality plaster boards not less than one-half inch in thickness, made of plaster and strong fiber, and all joints made true and well pointed; and provided that the space between the studs is filled in with brick and mortar or other incombustible material to the height of the floor beams.

STAIRS.

SEC. 47. — Every tenement house hereafter erected shall have at least one stairway extending from the entrance floor to the top story, in addition to the interior fire-escape, and every tenement house hereafter erected containing more than one hundred rooms above the first floor, shall have an additional separate stairway for every additional one hundred rooms or fraction thereof. Stairs shall be at least three feet wide between the wall and the stair rail, and shall have proper railing.

ENTRANCE TO STAIRWAYS.

SEC. 48. — Each stairway shall have an entrance on the entrance floor from a street or alley or open passageway or from an outer court, or from an inner court which connects directly with a street or alley or open passageway.

ENTRANCE HALLS.

SEC. 49. — All entrance halls in every tenement house hereafter erected shall be at least three feet six inches wide in the clear, from the entrance up to and including the stair enclosure, and beyond this point at least three feet wide in the clear. If such entrance hall is the only entrance to more than one stairway, that portion of said hall between the entrance and the stairway shall be increased at least eighteen inches in width in every part for each additional stairway.

PARTITIONS, CONSTRUCTION OF.

SEC. 50. — In all tenement houses of the second class hereafter erected, all bearing partitions shall run through the wooden floor beams and rest upon the cap of the partition below, or upon a girder or wall, and shall have the studding filled in solid between the uprights to the depth of the floor beams with incombustible materials. Fire stopping in third-class tenement houses may be of wood.

WOODEN TENEMENT HOUSES.

SEC. 51. — Outside of the fire limit districts, tenement houses not exceeding three stories in height above the basement, nor two thousand square feet in area, may be erected of wood. No wooden tenement house shall be increased in height so as to exceed three stories above the basement or cellar.

Two separate houses may have one common entrance, provided the walls, floor and ceiling of said entrance are fireproofed to the satisfaction of the Superintendent.

SHAFTS.

SEC. 52. — The skylight or roof covering every vent shaft in a tenement house shall be raised at all points at least one foot above the top of the walls of such vent shaft, and the space between the top of said walls and the skylight shall remain at all points open and unobstructed except for such supports essential to the stability of the skylight, as may be approved by the Superintendent.

PORTIONS USED FOR MERCANTILE PURPOSES, ETC.

SEC. 53. — If any portion of a tenement house is to be used for mercantile manufacturing or storage purposes, the walls and ceilings surrounding the areas so used shall be metal lathed or fire stopped to the satisfaction of the Superintendent.

SEC. 54. — The Superintendent may require that all transoms and windows opening into halls from any part of a tenement house where paint, oil, spirituous liquors or drugs are stored for the purpose of sale or otherwise, shall be glazed with wire glass, or that they shall be removed and closed up as solidly as the rest of the wall.

LIGHT AND VENTILATION.

YARDS.

SEC. 55. — The requirements for yards hereinafter provided shall be deemed sufficient for all tenement houses.

Except in those cases hereinafter provided for, there shall be, behind every tenement house hereafter erected,

a yard extending across the entire width of the lot, and at every point open from the ground to the sky unobstructed, except by fire-escapes or unenclosed outside stairs.

The depth of said yard shall be measured from the extreme rear wall of the house to the rear line of the lot, and at right angles to said line, except that where there is an alley or open passageway in the rear of the lot the depth of the yard may be measured to the middle of said alley or open passageway. On an irregular lot of several depths where there is more than one rear line to the lot, such yard may extend across the entire width of the lot in sections, provided that each section of the yard is in every part and at every point of the minimum depth hereinafter prescribed. Where the side lines of a lot converge toward the rear, the depth of the yard shall be such as to give it an area equal to the greatest width of the yard multiplied by the depth hereinafter prescribed.

Except as hereafter provided, the depth of the yard behind every tenement house hereafter erected fifty feet in height or less shall be not less than ten feet in every part. All yards without exception shall be increased in depth at least one foot for every additional ten feet of height of the building, or fraction thereof, above fifty feet.

When a tenement house hereafter erected does not front upon a street, a public alley, or a passageway, not less than fifteen feet wide; the requirements in this section as to yards shall apply to the front of such tenement house as well as to the rear. Neither the yard behind one tenement house nor any part thereof shall be deemed to satisfy in whole or in part the requirement of a yard in front of another tenement house.

Provided, however, that in all cases where a yard is required by this ordinance, the building above the first story shall not cover more than seventy-five per cent of the total lot area, unless a special permit shall have been granted therefor by the Superintendent and unanimously approved by the Board of Appeal. If the lot upon which the building stands extends through to an open alley or passage in the rear, half of the area of said passage opposite the rear line of the lot may be included as a part of the total lot area in estimating the size of the building.

CASES IN WHICH NO YARD SHALL BE REQUIRED.

SEC. 56. — No yard shall be required behind a tenement house hereafter erected upon a lot which abuts at the rear upon a railroad right of way, a cemetery or a public park.

No yard shall be required behind a tenement house hereafter erected upon a lot entirely surrounded by streets or by streets, alleys or open passageways, not less than twelve feet in width, or by such streets, alleys and passageways and a railroad right of way, a cemetery or a public park.

No yard shall be required behind a tenement house hereafter erected upon a lot running through from street to street or from a street to an alley or open passageway not less than twelve feet in width, provided that when a lot runs through from a street to a passageway less than twelve feet wide, the building shall be set back so that the distance from the center of the passageway to the rear line of the building shall be not less than that prescribed in the previous section for yards.

The rear yard herein provided for may be occupied over the whole area for mercantile or manufacturing purposes through the height of the basement and first story, not exceeding fourteen feet above the first floor.

COURTS.

SEC. 57.—No court of a tenement house hereafter erected shall be covered by a roof or skylight, but every such court shall be at every point open to the sky unobstructed. All courts, except for fire-escapes, may start at the second tier of beams.

OUTER COURTS.

SEC. 58.—The width of outer courts for tenement houses fifty feet or less in height shall be not less than six feet in every part; and for every ten feet of increase or fraction thereof in height of such tenement houses, such width shall be increased one foot, throughout the whole length of the court.

Wherever an outer court changes its initial horizontal direction, or wherever any part of such court extends in a direction so as not to receive direct light from the street or yard, or from an alley, or open passageway not less than twelve feet in width, the length of that part of the court shall never exceed its width, such length to be measured from the point at which the change of direction begins.

INNER COURTS.

SEC. 59.—The provisions of this section shall apply only to tenement houses hereafter erected. Where the building does not exceed fifty feet in height, the least width of the court shall be not less than eight feet, and the area of the court shall be not less than one hundred and twenty-eight square feet. For every ten feet or fraction thereof of increase in the height of the building above fifty feet the minimum width of such inner courts shall be increased by one foot, and the area shall be increased proportionally.

VENT COURTS.

SEC. 60.—Inner courts used solely for the lighting and ventilation of water-closets, bathrooms, public halls or

stair halls, or for interior fire-escapes, may be constructed in any tenement house, and shall be not less than fifteen square feet in area, nor less than three feet in the least horizontal dimension for buildings fifty feet or less in height. For every increase of ten feet or fraction thereof in the height of such buildings, the least dimension shall be increased by one foot, and the area by not less than eight square feet.

INTAKES.

SEC. 61. — Every inner court in a tenement house hereafter erected shall be provided with one or more horizontal intakes at the bottom. Such intakes, in vent courts, shall not be less than four square feet in area, so arranged as to be easily cleaned; in other inner courts they shall be not less than three feet wide and seven feet high, and there shall be at least two open grill doors, containing not less than fifteen square feet of unobstructed openings, one at the inner court and the other at the street or yard, as the case may be.

ANGLES OF COURTS.

SEC. 62. — Nothing contained in the foregoing sections concerning outer and inner courts shall be construed as prohibiting cutting off the angles of such courts by diagonal walls, provided the running length of said walls does not exceed six feet, or as prohibiting the placing of windows in such walls.

BUILDINGS ON THE SAME LOT WITH TENEMENT HOUSES.

SEC. 63. — Except as otherwise provided in Section 56, no tenement house shall hereafter be so enlarged or its lot so diminished, and no building of any kind shall be hereafter so placed upon the same lot with a tenement house, as to decrease the minimum depth of yards or the minimum size of courts or yards prescribed in this act for tenement houses hereafter erected.

ROOMS, LIGHTING AND VENTILATION.

SEC. 64. — In every tenement house hereafter erected there shall be in each room, except water-closet compartments and bathrooms, windows with movable sashes of a total area of at least one-eighth of the floor area of the room, opening directly on a street or public alley or open passageway not less than fifteen feet wide, or upon a yard or court of the dimensions hereinbefore specified, or upon a railroad right of way, cemetery or public park. The top of at least one window shall be not less than seven feet above the floor, except in rooms on the top floor, where the top of at least one window shall not be less than five feet six inches above the floor.

ALCOVES.

SEC. 65. — Every alcove in every tenement house hereafter erected shall be provided with an opening into a room, such opening to be equal in area to sixty per cent of that side of the alcove in which the opening is located.

No portion of a room in any tenement house shall be partitioned off so as to form an alcove not conforming to the provisions of this ordinance.

ROOMS, SIZE OF.

SEC. 66. — In every tenement house hereafter erected, all rooms, except water-closet compartments and bath-rooms, shall be of the following minimum sizes: In each apartment there shall be at least one room containing not less than one hundred and twenty square feet of floor area and provided with a chimney flue and thimble, except where said room is furnished with heat from a central heating apparatus. Each room above the basement shall be in every part not less than eight and one-half feet high from the finished floor to the finished ceiling, provided that only one-half of an attic room need be eight and one-half feet high. No bedroom above the basement shall be of an area less than seventy square feet, except one in each apartment, which may be not less than sixty-three square feet.

PUBLIC HALLS.

SEC. 67. — Except as otherwise provided in Section 68, in every tenement house hereafter erected, every public hall shall have at least one window opening directly upon a street, a public alley or open passageway not less than ten feet in width, a railroad right of way, a cemetery or a public park, or upon a yard or court or a vent court as provided in Section 60.

Any part of a hall which is shut off from any other part of said hall by a door or doors shall be deemed a separate hall within the meaning of this section.

WINDOWS FOR STAIR HALLS, SIZE OF.

SEC. 68. — In every tenement house hereafter erected the aggregate area of windows to light or ventilate stair halls on each floor shall be at least twelve square feet; provided, however, that when there shall be, within the space enclosed by the stairway and its landings, from the second story upward, an open area for light and ventilation whose least horizontal dimension shall be in no case less than three feet, then the windows required in Section 67 may be omitted, in which case there shall be in the roof, directly over the stairwell, a ventilating skylight provided with ridge ventilators, having a minimum open-

ing of forty square inches, or else such skylight shall be provided with fixed or movable louvres. The glazed roof of the skylight shall be not less than twenty square feet in area.

The conditions herein contained, which apply to public stairs and halls, shall not apply to prohibit or restrict the construction of additional stairs and halls for service purposes.

PRIVACY.

SEC. 69. — In every apartment of four or more rooms in a tenement house hereafter erected, at least one water-closet compartment shall be accessible without passing through any bedroom.

BASEMENT IN TENEMENT HOUSES.

SEC. 70. — In tenement houses no room in the cellar or basement shall be occupied for living purposes, unless all of the following conditions are complied with:

1. Such room shall be at least eight feet high in every part from the floor to the ceiling, and shall contain not less than ninety feet floor area.

2. There shall be appurtenant to such room the use of a water-closet, separate therefrom, constructed and arranged as required by Section 69.

3. Such room shall have a window or windows opening upon the street, an alley or open passageway not less than fifteen feet in width, a railroad right of way, cemetery or public park or upon a yard or court. The total area of windows in such room shall be at least one-eighth of the floor area of the room, and one-half of the sash shall be made to open full width, and the top of each window shall be within six inches of the ceiling.

4. The floor of such rooms shall be damp-proof and water-proof, and all walls surrounding such room shall be damp-proof.

WATER-CLOSETS IN TENEMENT HOUSES HEREAFTER ERECTED.

SEC. 71. — In every tenement house hereafter erected there shall be a separate water-closet in a separate compartment within each apartment of four or more rooms. Such compartment shall have a window, opening directly, or through a straight horizontal shaft of the same dimensions as the window and not more than four feet long, upon a street, a railroad right of way, cemetery or public park or a yard or alley or open passageway not less than four feet wide, or upon a vent court or upon a covered passageway not more than twenty feet long and at least twenty feet wide, and twenty feet high. Every such window shall be at least one foot by three feet between stop beads; and the whole window shall be made so as

to open readily. When, however, such water-closet compartment is located on the top floor and is lighted and ventilated by a skylight over it, no window shall be necessary, provided that the roof of such skylight contains at least three square feet of glazed surface and is arranged so as to open readily. Nothing in this section in regard to the ventilation of water-closet compartments shall apply to water-closet hereafter placed in an existing tenement house, to replace a defective fixture in the same position and situation. Every water-closet compartment in any tenement house shall be provided with proper means of lighting the same at night. No plumbing fixtures shall be enclosed with any woodwork.

LIGHTING AND VENTILATION OF EXISTING TENEMENT HOUSES.

SEC. 72. — The Superintendent may require rooms in existing tenement houses to be provided with adequate lighting and ventilation, not exceeding the minimum requirements of this ordinance. No tenement house shall be so altered as to reduce the provisions for the light and ventilation of any room or alcove or public hall or stair hall below the requirements of this ordinance.

SKYLIGHTS.

SEC. 73. — Where the public hall in an existing tenement house is not provided with windows opening as provided in Section 67, and where there is not a stairwell as provided in Section 68, all doors leading from such public hall into apartments shall be provided with translucent glass panels of an area of not less than four square feet for each door; or such public hall may be lighted by a window or windows at the end thereof with the plane of the window at right angles to the axis of the hall, said window opening upon the street, a railroad right of way, cemetery, public park or an alley or open passageway at least ten feet in width, or upon a yard or court of the dimensions hereinbefore provided. There shall be no flights of stairs of more than fifteen or less than three steps between landings.

WATER SUPPLY.

SEC. 74. — In every tenement house hereafter erected there shall be in each apartment a proper unenclosed sink with running water.

DRAINAGE OF COURTS AND YARDS.

SEC. 75. — In every tenement house hereafter erected or altered, all courts, areas, intakes and yards shall be properly graded, drained or otherwise surfaced to the satisfaction of the Superintendent.

RECEPTACLES FOR GARBAGE AND ASHES.

SEC. 76. — Receptacles or conveyors for ashes, rubbish, garbage, refuse or other matter shall be subject to the regulations of the Board of Health.

THEATERS.

DEFINITION.

SEC. 77. — Every building hereafter erected so as to contain an audience hall and a stage, with curtain, movable or shifting scenery, and machinery, adapted for the giving of plays, operas, spectacles or similar forms of entertainment, and of a size to provide seats for more than five hundred spectators, shall be a theater within the meaning of this ordinance. No existing building shall be altered and used as a theater, unless it conforms to the provision of this ordinance for a new theater.

CONSTRUCTION.

SEC. 78. — Every theater hereafter built to contain an audience of more than a thousand people or with more than one gallery or balcony above the main floor, and every theater, the stage of which is more than five feet above the level of the principal street upon which the theater abuts, shall be built of fireproof construction throughout, except that the floor boards may be of wood, and the steel work of the stage, of the fly galleries, and of the rigging loft need not be fireproofed.

Theaters seating less than one thousand persons, of which the stage is not over five feet above the level of the principal street, may be of second-class construction, but no theater nor place of amusement shall be built of third-class construction.

OPEN COURTS.

SEC. 79. — Every theater built in a block not on a corner shall have an open court or passageway on both sides extending from the proscenium line to the line of the street on the front, or in case the building abuts on a street both in front and rear, these passages may extend from the line of the front of the auditorium to the line of rear street. These passages shall be at least six feet wide throughout their length and shall not be closed by any locked gate or doorway. They shall immediately adjoin the auditorium, or a side passage or lobby directly connected therewith. These passages shall be open to the sky opposite the whole depth of the auditorium, but may be carried out to the street front or rear through passages enclosed by brick walls or other fireproof material

equally efficient, and covered by a solid brick vault at least eight inches thick, each passage to be not less than six feet wide and ten feet high throughout.

SEC. 80. — Every theater built upon the corner of two streets shall have one inner court on the side of the building away from the side street, such court to be of the same description as the courts provided for in the preceding paragraph; but if the theater is so planned that the auditorium is carried out on two sides to the lines of a public or private street or way, or is separated from such lines only by side passages or lobbies, both courts may be omitted.

STORES, ETC.

SEC. 81. — Nothing in this ordinance shall be construed to prohibit the use of any part of a theater building for stores, offices or for habitation, provided that the parts so used shall be built with exits to the street entirely distinct from the rest of the building, and shall be separated from the rest of the building by solid partitions or walls, without any openings in the same.

FLOOR LEVELS.

SEC. 82. — In all theaters the entrances shall be not more than one step above the level of the sidewalk of the main street.

PROSCENIUM WALL.

SEC. 83. — The stage of every theater shall be separated from the auditorium by a wall of fireproof construction, which wall shall extend the whole width of the auditorium and the whole height to the roof of the portion occupied by the stage. There shall be no openings through this wall between the stage and the auditorium except the curtain opening, one doorway each side behind the boxes, and one doorway which shall be located at or below the level of the stage. The doorways shall not exceed twenty-one superficial feet each, and shall have standard fire doors hung in a manner satisfactory to the Superintendent. The finish or decorative features around the curtain opening of every theater shall be of fireproof material.

In all buildings of second-class construction the proscenium wall must be of brick laid in mortar composed of at least one-third cement to two-thirds lime, must be twenty inches thick in the basement, not less than sixteen inches thick to a height of forty feet above the stage level, and not less than twelve inches thick for remaining height. In a building of first-class construction, this partition may be constructed of any of the approved fireproof materials provided for in this ordinance.

CURTAIN.

SEC. 84.—The proscenium or curtain opening of every theater shall have a fire-resisting curtain reinforced by wire netting, or otherwise strengthened. If of iron, or similar heavy material, and made to lower from the top, it shall be so arranged as to be stopped securely at a height of seven feet above the stage floor, the remaining opening being closed by a curtain or valance of fire-resisting fabric.

STAGE FLOOR.

SEC. 85.—In theaters of first-class construction, the part of the stage floor, usually equal to the width of the proscenium opening, used in working scenery, traps or other mechanical apparatus, may be of wood, and no flooring used thereon shall be less than one and one-eighth inches in thickness.

VENTILATORS.

SEC. 86.—There shall be one or more ventilators near the center, and above the highest part of the stage of every theater, of a combined area of opening satisfactory to the Superintendent, and not less than one-tenth of the area of the undivided floor space behind the curtain at the stage floor level. The openings in every such ventilator shall be closed by valves or louvres so counterbalanced as to open automatically, which shall be kept closed when not in use, by a fusible link and cord reaching to the prompter's desk, and readily operated therefrom. Such cord shall be of combustible material and so arranged that if it is severed the ventilator will open automatically.

Skylight coverings for ventilators shall have sheet metal frames set with double thick glass, each pane thereof measuring not less than three hundred square inches, or shall be protected with wire glass. If wire glass is not used, a suitable wire netting shall be placed immediately beneath the glass, but above the ventilator opening. Illuminating fixtures over the auditorium shall be suspended and secured in a manner approved by the Superintendent.

Glass on illuminating fixtures over the auditorium shall be secured from danger of falling as the Superintendent shall require, but in no case shall any glass more than six inches in diameter or length be hung over the auditorium unless protected from falling by a wire netting or similar device satisfactory to the Superintendent.

SEATS IN AUDITORIUM.

SEC. 87.—All seats in the auditorium excepting those contained in boxes shall be spaced not less than thirty inches from back to back, measured in a horizontal direc-

tion, and shall be firmly secured to the floor. No seat in the auditorium shall have more than six seats intervening between it and an aisle on either side.

The platforms for seats in balconies and galleries shall nowhere have a greater rise than twenty-one inches, nor be less than thirty inches from back to back.

AISLES.

SEC. 88. — All aisles on the respective floors in the auditorium having seats on both sides of the same, shall be not less than thirty inches wide where they begin and shall be increased in width toward the exits in the ratio of one inch to five running feet. Aisles having seats on one side only shall be not less than two feet wide at their beginning and shall increase in width, the same as aisles having seats on both sides.

CHANGES IN LEVEL.

SEC. 89. — All changes in the levels of the floors of such buildings, except under stairways, from story to story, and except the necessary steps in galleries and balconies rising toward the exits, shall be made by inclines of no steeper gradient than two in ten within the auditorium and rising toward the exits, and one in ten for all others.

LOBBIES.

SEC. 90. — Preceding each division of the theater there shall be foyers, lobbies, corridors or passages, the aggregate capacity of which on each floor or gallery shall be sufficient to contain the whole number to be accommodated on such floor or gallery in the ratio of one square foot of floor room for each person.

STAGE DOORS.

SEC. 91. — There shall be not less than two exit doors, each not less than three feet in width, located as far apart as practicable, and opening directly upon a street, alley, court, courtway or passage leading to a public thoroughfare.

ROOM EXITS.

SEC. 92. — All rooms in theaters for the use of persons employed therein shall have passages to at least two independent means of exit.

DOORS TO OPEN OUTWARD.

SEC. 93. — All doors of exit or entrance shall open outward, and shall be hung so as to swing in such a manner as not to become an obstruction in a passage or corridor.

and no such doors shall be fastened so as to be inoperative when the building is occupied by an audience.

FALSE DOORS.

SEC. 94. — No mirrors shall be so placed as to give the appearance of a doorway or exit, hallway or corridor, nor shall there be any false doors or windows.

MAIN FLOOR AND FIRST GALLERY EXITS.

SEC. 95. — A common exit may serve for the main floor of the auditorium and the first gallery, provided that its capacity be equal to the aggregate capacity of the outlets from the main floor and the said gallery; and provided that the lowermost run of any exit leading from a gallery shall not open directly at right angles with the central axis of a common exit unless there is a clear space or landing of at least one and one-quarter times the width of the exit between the foot of such exit and such center line or nearest exit doorway.

EXITS.

SEC. 96. — Two distinct and separate exits shall be provided for each gallery and balcony above the main floor; and the same shall be located on opposite sides of the galleries.

All gallery or balcony exits shall start with a width of not less than three feet at the uppermost gallery.

Exits from balconies and galleries shall not communicate with the basement or cellar.

AGGREGATE WIDTH OF EXITS.

SEC. 97. — The aggregate width of all the exits previously described shall be estimated on a basis of not less than twenty inches for every one hundred persons for whom seats are provided in the sections of the auditorium served by the respective exits.

EMERGENCY EXITS.

SEC. 98. — In addition to the exits previously described there shall be one exit from each side of each gallery, balcony and main floor of auditorium, at least five feet wide, leading to exterior balconies not less than four feet wide and twenty feet long on each side of the auditorium. From such balconies there shall be staircases extending to the ground level, which may be counter-weighted, with risers of not over eight and one-half inches and treads of not less than nine and one-half inches, exclusive of nosing. The aggregate width of these emergency stairs shall be not less than ten inches for

every one hundred people served thereby, no single stairs being less than thirty inches wide. If counterweighted, these stairs shall be lowered during all performances.

Where such stairs are in an interior court, each run shall be covered by a light awning of iron.

Nothing herein shall prohibit the building of emergency stairs and exits inside the walls of the building, provided that they are surrounded by a fireproof partition not less than four inches thick separating the exits and stairways from the audience room or auditorium.

ADDITIONAL REQUIREMENTS.

SEC. 99. — The Superintendent shall have power to require a greater number or capacity of exits than is herein prescribed.

In every theater there shall be over every exit, on the inside, and over every opening to a fire-escape, on the inside, an illuminated sign, bearing the word "exit" or "fire-escape," respectively, in letters not less than four inches high. The lights for the exit signs, passages, stairs, lobbies, auditoriums, rear of auditoriums, balconies galleries for the balconies, and stairs outside the building, shall be so arranged that they can be turned on or off independently of the means provided on the stage or in any part of the building in the rear of the proscenium wall. Every exit sign shall be kept illuminated and every outside balcony and fire-escape shall be kept well lighted during the performance, except outside exits during a performance before sunset.

Plans showing the exits and stairways shall be legibly printed so as to occupy a full page of every program or play bill.

STAIRS.

SEC. 100. — The cut of the stair stringers shall not exceed seven and one-half inches rise, nor be less than ten and one-half inches tread.

LANDINGS OF STAIRS.

SEC. 101. — Every landing shall be at least four feet wide. When straight stairs return directly on themselves, a landing of the full width of both flights, without any steps, shall be provided. The outer line of landings shall be curved to a radius of not less than two feet to avoid square angles. Stairs turning at an angle shall have a proper landing without winders introduced at the turn. No door shall open immediately upon a flight of stairs, but a landing at least two feet wider than the width of the floor opening shall be provided between such stairs and such door. When two side flights connect with one

main flight, no winders shall be introduced, and the width of the main flight shall be at least equal to the aggregate width of the side flights.

HAND-RAILS.

SEC. 102. — All enclosed stairways shall have, on both sides, strong hand-rails, firmly secured to the wall, about three inches distant therefrom and about three feet high above the stairs.

All stairways eight feet and over in width shall be provided with a central rail of metal or hardwood, not less than two inches in diameter, placed at a height of about three feet above the center of the treads, supported on wrought metal or brass standards of sufficient strength, securely bolted to the treads or risers of the stairs; and at the head of each flight of stairs, and on each side of the landing, the post or standard shall be at least six feet in height, and the rail shall be secured to the post.

MEASUREMENTS FOR WIDTH OF STAIRS.

SEC. 103. — The width of all stairs shall be measured in the clear between the hand-rails.

No winding or circular stairs shall be permitted.

RADIATORS FORBIDDEN IN PASSAGEWAYS.

SEC. 104. — No coil or radiator or floor register shall be placed in any aisle or passageway used as an exit; but all such coils and radiators may be placed in recesses formed in the wall or partition to receive the same.

No boiler furnace, engine or heating apparatus, except steam, hot-water or hot-air pipes or radiators, shall be located under the auditorium or under any passage or stairway or exit of any theater.

SPRINKLERS AND STANDPIPES.

There shall be at least two two-inch high-service stand-pipes on the stage of every theater, with ample provision of hose nozzles at each level of the stage on each side, and the water shall be kept turned on during the occupation of the building by an audience. The said pipes shall in no case be sealed, and shall have two gates, one above the other, with a proper test or waste valve; the lower gate to be kept open at all times. The proscenium opening of every theater shall be provided with a two and one-half inch perforated iron pipe, or equivalent equipment of automatic or open sprinklers, so constructed as to form, when in operation, a complete water curtain for the whole proscenium opening, and there shall be for the rest of the stage a complete system of fire apparatus

and perforated iron pipes, automatic or open sprinklers. Such pipes or sprinklers shall be supplied with water by high-pressure service and shall be at all times ready for use.

PLACES OF PUBLIC ASSEMBLY.

SEC. 105. — Every building hereafter erected as a place of public worship or with a hall or assembly room to contain an audience of more than a thousand persons, shall be of fireproof construction throughout, except the roof, which may be of second-class construction.

The capacity of a hall or assembly room shall be estimated on the basis of eight square feet for each person.

No existing building shall be altered to contain a hall or assembly room exceeding the foregoing dimensions, unless the whole building as altered shall conform to the provisions of this ordinance.

Every hall, auditorium or room of every building hereafter erected for or converted to use as a schoolhouse, factory, theater or place of public assembly or entertainment, shall have in continuous operation while occupied a system of ventilation so contrived as to provide fifty cubic feet per minute of outer air for each light other than an electric light and for each occupant.

MOVING-PICTURE SHOWS.

SEC. 106. — All moving-picture shows shall be subject to the provisions of Chapter 176 and of Chapter 437 of the acts of the year nineteen hundred and five, and of any amendments thereof or additions thereto now or hereafter made.

EXITS, ETC.

SEC. 107. — Every building hereafter erected containing a hall or assembly room shall conform to all the aforesaid requirements as to exits, stairways, exit lights, aisles and seats which apply to theaters, subject to such exceptions as the Board of Appeal shall approve.

ROOF GARDENS.

SEC. 108. — Nothing herein contained shall prevent the placing of a roof garden, art gallery or rooms for similar purposes above a theater, provided the floor of the same forming the roof over such theater shall be constructed of fireproof materials, and shall have no covering boards or sleepers of wood. Every roof over such garden or other rooms shall have all supports and rafters of steel, and, if covered, shall be covered with glass or fireproof material, or both.

EXITS FROM ROOF GARDENS.

SEC. 109. — Exits from roof gardens may communicate with stairs leading from the auditorium of the theater, but they shall be at least four in number, not less than four feet six inches wide, and distinct and separate from each other from roof to street.

SUMMER THEATERS.

SEC. 110. — Summer theaters, if built without the building limits, and located thirty feet distant from any other building or structure or adjoining lot lines, and of no greater seating capacity than seven hundred and fifty persons, and not more than one story high, without balconies or galleries, may be constructed as follows:

The auditorium without a cellar or basement, with open sides of double the number of exits as hereinbefore provided, opening directly into the surrounding courts or gardens at the grade level, and the adjoining dressing rooms, may be of wooden construction, but the stage shall be enclosed in brick walls not less than twelve inches thick, or shall be plastered on metal lathing throughout; provided that the openings leading to the dressing rooms shall be provided with fire doors.

Otherwise, all protective features and arrangements shall comply with all provisions for theaters.

EXISTING THEATERS.

SEC. 111. — Alterations of existing theaters and places of public assembly shall be subject to such regulations as the Superintendent shall prescribe in each case, not inconsistent with the provisions of this ordinance for new structures.

PLUMBING.

DEFINITION OF TERMS.

SEC. 112. — The following terms shall have the meanings respectively assigned to them:

“Repair of leaks” shall mean such repairs as are necessary to protect property, but do not involve any extensive change of construction.

“Y branches” shall mean a branch at sufficient angle to direct the flow and prevent backing up.

“Air pipes” or “back air pipes” shall mean air pipes from traps that extend toward the main soil pipe or the outer air and connect with not more than three traps.

“Vent pipes” shall mean general lines of back air pipes connecting with more than three fixtures.

“Drain” shall mean that part of the drainage system of a building extending through basement or cellar to sewer.

“Soil pipe” shall mean that part of the drainage system of a building, of four inches or more internal diameter, between basement or cellar and the highest fixture in the building.

“Ventilation pipe” shall mean the extension of the soil pipe from the highest fixture to and through the roof.

“Surface drain” shall mean a connection with drain in the basement to allow egress of surface water or overflow.

“Fixture” shall mean any receptacle or outlet placed for the purpose of disposing of waste water or other matter, and connecting with the waste, soil or drain pipe of a building.

Except as otherwise distinctly provided, Sections 113 to 124 inclusive shall apply only to alterations and to new plumbing work.

REGISTRATION.

SEC. 113. — No plumber shall engage in or work at the business of plumbing unless he shall have first registered his name and place of business in the office of the Superintendent, and no person shall by display of sign or plumbing material, or otherwise, advertise as a plumber unless he shall have been registered or licensed as such. Every master plumber shall conspicuously display his certificate or license within his place of business. Notice of any change in the place of business of a registered or licensed master plumber shall be immediately given to the Superintendent.

NOTICES.

SEC. 114. — Every plumber, before doing any work in a building, shall, except in the case of repair of leaks, file at the office of the Superintendent, upon blanks for that purpose, an application for a permit, and if required by the Superintendent a plan or sketch of the work to be performed; and no such work shall be done in any building without a written permit from the Superintendent.

CONNECTION WITH SEWER OR DRAIN.

SEC. 115. — The plumbing of every building shall be separately and independently connected outside the building with the public sewer, if such sewer is provided, or with a proper and sufficient private drain or sewer laid outside of the building, and if a sewer is not accessible, with a proper cesspool. Several buildings may have a common sewer connection if such connection is approved by the Superintendent.

INSPECTION AND TESTS.

SEC. 116. — Pipes or other fixtures shall not be covered or concealed from view until approved by the Superintendent, who shall examine or test the same within two working days after notice that they are ready for inspection.

Plumbing shall not be used unless, when roughed in, the wastes, vents and back air pipes and traps are first tested by water or sufficient air pressure in the presence of the inspector, when such testing is practicable.

SOIL AND WASTE PIPES AND TRAPS.

SEC. 117. — The waste pipe of every independent sink, basin, bathtub, water-closet, slop-hopper, urinal or other fixture shall be furnished with a separate trap, which shall be placed as near as practicable to the fixture which it serves. A sink and set of three wash-trays or a bathtub and a basin, when they adjoin, may be connected to the house drain through one five-inch round trap, when the outlets are not over three feet six inches apart. The outlet from each fixture shall enter the trap separately. Not more than four wash-bowls or sinks in a continuous line may be connected to the house drain through one five-inch round trap. Two water-closets or two other traps on the same level with not more than three feet of waste pipe connecting with the soil or waste pipe not more than eighteen inches below the top water line of the trap, shall not require other vent than the continuation of the soil or waste pipe full size for its whole length. Lateral branches of soil or waste pipe, if more than twenty feet in length, shall be extended through the roof in a size prescribed for the ventilation of the attached trap, or be vented into a main vent line. All connections on lead waste and back air pipes and of lead pipes to brass ferrules and soldering nipples shall be full size wiped soldered branch, round or flanged joints. Soil and waste pipes shall have proper T-Y or Y branches for all fixture connections. No connection to lead bends for water-closets or slop-sinks shall be permitted, except the required back air pipe where a continuous vent is not practicable.

Earthenware traps shall have heavy brass floor plates soldered to the lead bends and bolted to the trap flange, and the joint made gas tight with red or white lead. Rubber washers for floor connections shall not be used. Crown venting shall not be used except where continuous venting is not practicable.

BACK AIR PIPES, VENTS, ETC.

Except as otherwise provided, traps shall be protected from siphonage or air pressure by special iron or brass

air pipes of a size not less than the waste pipes they serve; back air pipes shall not be connected to the trap or branched into the waste pipe, except where a continuous vent is not practicable, but a suitable non-siphon trap may be used without a back air pipe upon the approval of the Superintendent. Back air pipes shall enter the waste pipe within eighteen inches from the trap and shall be a continuation of the waste pipe. Lead air pipes may be used only for short connections, where they are exposed to view. Air pipes for water-closet traps shall be connected to the highest point of bend or trap, and may be of two-inch bore if for not more than three fixtures and less than thirty feet in length; if for more than three fixtures or more than thirty feet in length, they shall be of three-inch bore. Air pipes shall be run as direct as practicable, and if one and one-half inches or less in diameter, shall not exceed thirty feet in length. Two or more air pipes may be connected together or with a vent pipe; but in every such case the connection shall be above the top of the fixture. The trap for the upper fixture on a line of soil or waste pipe, if within five feet of the stack in a horizontal line, shall not require a special air pipe, unless the outlet is branched into a stack more than eighteen inches below the top water line of the trap. Diameters of vent pipes shall not be less than two inches for main vents through less than seven stories; three inches for water-closets on more than three floors and for other fixtures in more than seven stories. All vent pipes shall be at least four inches in diameter when they pass through the roof. Vent lines shall be connected at the bottom with a soil or waste pipe or with the drain, in such a manner as to prevent accumulation of rust scale and properly to drip the water of condensation. Off-sets shall be made at an angle of not less than forty-five degrees. Soil pipes or iron waste pipes, vents and back air pipes shall be supported by clamps to the woodwork, iron drive hooks to brick walls, or bolted clamps to iron girders.

All traps, except for water-closets, not provided with special air pipes shall be suitable non-siphon traps. Round traps shall be not less than four inches in diameter and eight inches long, and made of eight-pound lead. All trap screws shall be water-sealed.

CHEMICAL LABORATORIES.

Fixtures and waste pipes in chemical laboratories shall be installed in accordance with plans approved by the Superintendent.

STABLES.

The drainage of stable fixtures shall be constructed in accordance with plans approved by the Superintendent.

SEC. 118. — In buildings where a series of bathrooms or kitchens are located directly over each other and having a common soil or waste pipe, the back air pipe required shall be a vent line connecting with each outlet branch close to the water-closet connection or outlet from the sink trap, each branch vent to connect to vent line above the top of the highest fixture on each floor, the vent line to connect to main vent line above the top of the highest fixture in the building.

In the case of batteries of water-closets or other fixtures the special air pipe from each trap may be omitted, provided the soil or waste pipe, undiminished in size, is continued to a point above the roof or revented into the main soil pipe system above the top of the uppermost fixture.

REFRIGERATOR WASTES AND DRIP PIPES.

SEC. 119. — All drip or overflow pipes shall be extended to some place in open sight, and in no case shall any such pipe be connected directly with the drain pipe. No waste pipe from a refrigerator or other receptacle in which provisions are stored shall be connected directly with a drain or other waste pipe. The waste pipes from all other fixtures shall be connected directly with a drain pipe. Refrigerator wastes connecting with two or more stories shall be supplied with a trap on the branch for each floor and extended through the roof.

WATER-CLOSETS, ETC.

SEC. 120. — Every water-closet or line of water-closets shall be supplied with water from a tank or cistern, and shall have a flushing pipe of not less than one and one-quarter inches in diameter.

DIAMETERS OF WASTE PIPES, ETC.

SEC. 121. — The diameters of soil and waste pipes shall be not less than those given in the following table:

	<i>Inches.</i>
Soil pipes.....	4
Main waste pipes.....	2
Main waste pipes for kitchen sinks on five or more floors.....	3
Branch waste pipes for laundry tubs.....	1½
Branch waste for kitchen sinks.....	1½
Branch waste for urinals.....	1½
No branch waste for other fixtures shall be less than	1¼

Except that, with the approval of the Superintendent, a three-inch soil pipe may be used for one water-closet where it is not practicable to use a four-inch pipe.

FERRULES, CLEAN-OUTS, ETC.

The screw cap shall have a solid square or hexagonal nut, not less than one-half inch high, with a least diameter of one and one-half inches. The bodies of brass clean-out ferrules shall be at least equal in weight and thickness to the calking ferrule for the same size of pipe.

LEAD BENDS.

Lead bends shall be not less than eight pounds per foot.

BRASS PIPE.

Brass pipe for soil, waste, vent and back air pipes shall be thoroughly annealed, seamless, drawn brass tubing, of not less than No. 13 Stubbs gauge.

No slip joints or unions shall be used on traps, waste, vents or back air pipes. Threaded connections on brass pipe shall be of the same size as pipe threads for the same size of pipe and shall be tapered. Connections between lead and iron shall be made by brass sleeves or screw nipples wiped to the lead and calked or screwed into the iron.

CAST-IRON PIPES, ETC.

Cast-iron pipes shall be uncoated, sound, cylindrical and smooth, free from cracks and other defects, of uniform thickness and of the grade known to commerce as "extra heavy." If buried underground, they shall be coated with asphaltum or red lead.

Pipe, including the hub, shall weigh not less than the following average weights per linear foot:

<i>Diameters.</i>	<i>Weights per linear foot.</i>
	<i>Pounds.</i>
Two inches.....	5½
Three inches.....	9½
Four inches.....	13
Five inches.....	17
Six inches.....	20
Seven inches (not stock size).....	27
Eight inches.....	33
Ten inches.....	45
Twelve inches.....	54

All joints shall be made with picked oakum and molten lead run full, and be made gas tight. No cement joints nor connections between iron and cement or tile pipe or brick drains shall be made within any building.

WROUGHT-IRON PIPE.

Fittings on wrought-iron vent or back air pipes shall be cast-iron threaded fittings. Fittings for "plumber's tubing" shall be heavy weight, with sharp threads.

DRAIN PIPES, ETC.

SEC. 122. — Drain and connecting ventilation pipes, vents and back air pipes shall be of sufficient size, and made of extra heavy cast-iron pipe if under ground, and if above ground shall be made of extra heavy cast iron, galvanized wrought iron of standard weight, or brass pipe of not less than No. 13 Stubbs gauge within the building, except that lead pipes may be used for short connections exposed to view; provided that no drain pipe shall be of wrought iron.

Cast-iron drains shall extend not less than ten feet from the inside face of the wall, beyond and away from the building.

Drain pipes above ground shall be secured by irons to walls, suspended from floor timbers by strong iron hangers, or supported on brick piers. Proper manholes shall be supplied to reach cleanouts and traps. Every drain pipe shall have a fall of not less than one-quarter inch per foot, and shall be extended from a point ten feet outside the inside face of the wall, unobstructed, to and through the roof undiminished in size, and to a height not less than two feet above the roof and not less than one foot above the top of any window within fifteen feet, and not less than eight feet above the roof if the roof is used for drying clothes or as a roof garden. Every drain pipe shall be provided with a running trap of a size not less than the internal diameter of the drain with heavy brass clean-out.

Changes in direction shall be made with curved pipes, and all connections with horizontal or vertical pipes shall be made with Y branches. Saddle hubs shall not be used. All drain pipes shall be exposed to sight within the building, if such exposure is practicable, and shall not be exposed to pressure where they pass through the wall.

STEAM EXHAUSTS, ETC.

No steam, or vapor, or water of a temperature over one hundred and thirty degrees Fahrenheit shall be discharged from any premises into any sewer, drain or catch-basin, nor shall any matter or thing be discharged into any sewer which may tend to cause an obstruction of the public sewer or a nuisance or a deposit therein or any injury thereto.

All high-pressure steam boilers shall be connected with a blow-off tank of a capacity not less than thirty per cent

of the largest boiler connected with such tank. The location of and the connections to said blow-off tank shall be subject to the approval of the Superintendent.

No steam exhaust or steam drip, unless it be provided with a cooling tank of a capacity approved by the Superintendent, or unless it be connected with the blow-off tank, shall connect with any drain leading to the sewer. Every blow-off tank shall be supplied with a vapor pipe not less than two inches in diameter, which shall be carried above the roof and above the highest windows of the building.

The Superintendent may require such additional means for cooling the blow-off tanks by the injection of cold water or otherwise as may be necessary to reduce the temperature of the water passing from the blow-off tank so that it shall not exceed one hundred and thirty degrees Fahrenheit.

SPECIAL TRAPS, ETC.

SEC. 123. — Every building from which in the opinion of the Superintendent grease may be discharged in such quantity as to clog or injure the sewer, shall have a special grease trap, satisfactory to the Superintendent. Every building in which gasoline, naphtha or other inflammable compounds are used for business purposes shall be provided with a special trap, satisfactory to the Superintendent, so designed as to prevent the passage of such material into the sewer, and ventilated with a separate pipe rising to a point four feet above the roof. The waste pipe of every washstand for vehicles shall be provided with a sand box of sufficient capacity.

The waste pipe from the sink of every hotel, eating-house, restaurant or other public cooking establishment shall be connected to a grease trap of sufficient size, easily accessible to open and clean, placed as near as practicable to the fixture that it serves.

ROOF LEADERS AND SURFACE DRAINS.

SEC. 124. — Rain-water leaders shall not be connected to sewage stack at any point above the basement or cellar ceiling. Wherever a surface drain is installed in a cellar or basement, it shall be provided with a deep seal trap and back water valve. Drain pipes from fixtures in cellars and basement liable to back flow from a sewer shall be supplied with back water valves.

GAS FITTING AND GAS-FITTING MATERIALS.

SEC. 125. — No pipe or fitting shall be covered or concealed from view until approved by one of the gas inspectors of the building department, or for twenty-four hours after notice has been given to the Superintendent.

No pipe shall be so laid as to support any weight (except fixtures), or be subjected to any strain.

All outlets for fixtures shall be securely fastened to the satisfaction of the Superintendent; all outlets not covered by fixtures shall be left capped, and the number of burners for each outlet shall be marked on the builder's plans.

Any pipe laid in a cold or damp place shall be properly dripped and protected.

All swing brackets shall have a globe or guard to prevent its burner from coming in contact with the wall. All bracket outlets shall be at least two inches from window or door casings.

Gas or combination fixtures in all public buildings, theaters and public halls shall be made safe to the satisfaction of the Superintendent.

All stop-pins to keys or cocks or fixtures shall be screwed into place.

The use of gas fitters' cement is prohibited, except in putting fixtures together.

Gas shall not be let on in any building until the work performed has been approved by the Superintendent. Inside services shall be tested by the fitter who receives the permit to connect the service or meter.

There shall be a brass straightway valve on the service pipe close to the foundation wall, one at the inlet and one at the outlet side of each meter. Iron valves shall not be used.

There shall be a final test, by a gas fitter, of all fixtures and pipes by two inches of mercury, which must stand five minutes; this test is to be made in the presence of one of the gas inspectors of the building department; the gauge to be made of glass tubing of uniform interior diameter, and so constructed that both surfaces of the mercury will be exposed.

All gas pipe shall be of wrought iron, all fittings of malleable iron, and all meter connections of lead pipe of the same size as the fit or riser. Galvanized fittings are prohibited.

Brass solder nipples shall be used on all meter connections.

No riser shall be left more than five feet away from the front foundation wall.

All buildings shall be piped according to the following scale and properly fastened:

	<i>Inches.</i>	<i>Feet.</i>	<i>Burners.</i>
Iron pipe.....	$\frac{3}{8}$	26	3
Iron pipe.....	$\frac{1}{2}$	30	6
Iron pipe.....	$\frac{3}{4}$	50	20
Iron pipe.....	1	70	35
Iron pipe.....	1 $\frac{1}{4}$	100	60

	<i>Inches.</i>	<i>Feet.</i>	<i>Burners.</i>
Iron pipe.....	1½	150	100
Iron pipe.....	2	200	200
Iron pipe.....	2½	300	300
Iron pipe.....	3	450	450
Iron pipe.....	3½	500	600
Iron pipe.....	4	600	750

All outlets and risers shall be left capped or covered with fixtures.

All service pipes in cold or damp places shall be painted with two coats of red lead and boiled oil.

Gas outlets for burners shall not be placed under tanks, back of doors, or within four feet of any meter.

All gas burners less than three feet from ceiling or woodwork shall be protected by a shield.

All brass tubing used for arms or stems of fixtures shall be at least No. 18 standard gauge and full size outside so as to cut a full thread. All threads on brass pipe shall screw in at least 5-16 of an inch. All rope or square tubing shall be brazed or soldered into fittings and distributors, or have a nipple brazed into the tubing.

All cast fittings, such as cocks, swing joints, double centers and nozzles, shall be standard fittings, except for factory use, where extra heavy or mill fittings shall be used. The plugs of all cocks must be ground to a smooth and true surface for their entire length, be free from sand-holes, have not less than three-quarters inch bearing on all cast fittings, and eleven-sixteenths of an inch on all turned fittings, have two flat sides on the end for the washer and have two nuts instead of a tail screw. No unions to be used when concealed. Only right and left couplings to be used.

Outlets for gas ranges shall have a diameter not less than that required for six burners, and all gas ranges and heaters shall have a straightway valve on the service pipe.

Pipes in buildings shall be laid above timbers instead of beneath them, where it is possible to do so.

No second-hand gas pipe shall be put into use in any building without the written permit of the Superintendent.

Drops or outlets less than three-quarters of an inch in diameter shall not be left more than three-quarters of an inch below plastering, centerpiece or woodwork, and other outlets shall not project more than three-quarters of an inch beyond plastering or woodwork.

Fastening boards shall not be cut away to accommodate electric wires. All outlets shall be fastened.

All iron pipes used for piping buildings, all arms and all items of fixtures shall be of the kind classed as standard pipe and shall weigh according to the following table:

	<i>Size (inches).</i>	<i>Pounds per foot.</i>
Iron pipe.....	$\frac{1}{8}$.24
Iron pipe.....	$\frac{1}{4}$.42
Iron pipe.....	$\frac{3}{8}$.56
Iron pipe.....	$\frac{1}{2}$.85
Iron pipe.....	$\frac{3}{4}$	1.12
Iron pipe.....	1	1.67
Iron pipe.....	$1\frac{1}{4}$	2.24
Iron pipe.....	$1\frac{1}{2}$	2.68
Iron pipe.....	2	3.61
Iron pipe.....	$2\frac{1}{2}$	5.74
Iron pipe.....	3	7.54
Iron pipe.....	$3\frac{1}{2}$	9.00
Iron pipe.....	4	10.66

No gas pipe shall be laid in cement, unless the pipe and channel in which it is placed are covered with tar, nor within six inches of an electric wire.

Wherever spark-lighting or self-lighting burners are used, the mercury test shall be applied to the cocks.

All stems of fixtures of two lights or more each shall be not less than one-quarter of an inch iron pipe size. L-burner cocks shall not be used at the end of chandelier arms.

HAZARDOUS BUILDINGS AND APPLIANCES FOR POWER AND HEAT.

SEC. 126. — No building shall be used for a grain elevator, or for the storage or manufacture of high combustibles or explosives or for chemical or rendering works, without a permit from the Superintendent, and no engine or boiler carrying a pressure of over fifteen pounds per inch shall be placed in any building without a permit from the Superintendent. Every application for such permit shall be in writing, shall be filed with the Superintendent, and shall set forth the character of the building, the size, power and purposes of the apparatus, and such other information as the Superintendent may require. The applicant shall publish in at least two newspapers published in the city of Cambridge and, if so directed by the Superintendent, shall also post conspicuously on the premises a copy of the application and shall deliver copies thereof to such persons as the Superintendent may designate.

If no objection is filed with the Superintendent before the expiration of ten days after the time of the first publication of notice, or within ten days of the delivery and first posting of the notice if such delivery or posting is required, the Superintendent shall, if the arrangement, location and construction of the proposed apparatus is

proper, and in accordance with the provisions of this act, issue a permit for the same. If objection is filed, the application shall be referred to the Board of Appeal, which may, in its discretion, require the deposit by the objector of a reasonable sum as security for the payment of the costs.

After such notice as the board shall order, it shall hear the same and shall direct the Superintendent to issue a permit, under such conditions as it may prescribe, or to withhold the same. If the permit is refused, the applicant, and if it is granted, the objectors, shall pay such costs as the board may order.

The Superintendent shall from time to time, after public notice and hearing, prescribe conditions on which any or all boilers carrying a pressure of over fifteen pounds per inch may be maintained in buildings, and, if any person interested objects to such conditions and appeals from his decision establishing the same, the appeal shall be referred to the Board of Appeal and thereupon said board shall prescribe the conditions.

COMBUSTIBLE MATERIALS.

SEC. 127. — No building in actual use for habitation, nor any part thereof, nor the lot upon which it is situated, shall be used as a place for storage, keeping or handling of any combustible article, nor as a place for the storage, keeping or handling of any article dangerous or detrimental to life or health, nor for the storage, keeping or handling of feed, hay, straw, excelsior, cotton, paper stock, feathers or rags, except under such conditions as may be prescribed by the chief of the Fire Department.

SEC. 128. — Any notice required by this ordinance shall be sufficient if mailed postage prepaid to the address of the interested party or parties given in the application filed by them, or subsequently changed by notice in writing to the Superintendent.

REPEALS.

SEC. 129. — So much of any other act or ordinance of the city of Cambridge as is inconsistent herewith is hereby repealed.

SEC. 130. — This ordinance shall take effect upon the first day of March, in the year nineteen hundred and eight.

[Approved Jan. 2, 1908.]

GENERAL SPECIFICATIONS FOR FIRE-ESCAPES.

This specification is intended for an ordinary fire-escape from a factory, workshop, tenement or lodging house or hotel, where not more than one hundred persons are to be accommodated or protected thereby.

For all fire-escapes or outside stairways from public halls and other places of assemblage, the plans and specifications of the escape or stairway must be submitted to the inspector for his approval before the escape is constructed; and in all cases the written order of the inspector is to be followed instead of this specification, if differing therefrom; and any request for a change in or modification of this specification must be made in writing within ten days from the receipt of the order of the inspector, and accompanied by a plan and specification of the fire-escape which the party proposes or desires to build, showing its connection with the rooms of the building.

For escapes constructed under this specification the stairs must never be less than 24 inches in width, and all passageways on the balconies, between the stairs and the walls of the building, must be as wide as the stairs. The inclination of the stairs must not be greater than 48 degrees, or the rise of the steps more than 9 inches, without the consent of the inspector. The stairs must connect with each story by railed balconies, and must, in all cases where practicable, descend to the ground. Where a fire-escape projects over a highway, the lower balcony must connect with the ground by a folding ladder.

Unless otherwise specified in the order of the inspector, the access to the balconies from the building may be by windows; but in no case must the distance from the top of window sill to the balcony floor be more than 10 inches.

The top pieces of the balcony brackets may be of $2\frac{1}{2}$ x $\frac{1}{2}$ inch iron, or $2\frac{1}{2}$ x $\frac{1}{2}$ inch T or channel iron, and in either case must be bolted through the wall by not less than $\frac{3}{4}$ inch bolts, with 5-inch washers on the inside, and the brackets must not be more than $3\frac{1}{2}$ feet apart.

Braces to be of 1-inch round or square or 2 x 2 inch T iron, securely bolted at top and entering the wall 3 inches at bottom, with a shoulder resting on a heavy washer.

The flooring of the balconies to be of 1 x $\frac{1}{4}$ inch iron, set on edge, separated not more than $1\frac{1}{4}$ inches by thimbles, and securely bolted at least once in every 2 feet. Extra bearing-pieces must be put in where necessary to support the flooring.

Where the steps descend through the balcony, there must be at least 6 feet in vertical height between the front of the opening and the front line of the steps.

The stair stringers to be of iron, not less than 4 x $\frac{3}{4}$ inch, properly bracketed to support the treads.

Treads to be made of 1 x $\frac{1}{4}$ inch iron, set on edge, separated not more than $1\frac{1}{8}$ inch by thimbles, and bolted in two places, making a tread not less than 7 inches wide, and properly secured to the brackets.

Hand rails for balconies to be of $1\frac{1}{4}$ x $\frac{1}{2}$ inch iron, 2 feet 10 inches high, set flat wise, filled under with $\frac{5}{8}$ inch round iron rods not over 8 inches apart; or any flat iron or round iron cross or fancy work for filling, strongly made and equivalent to the above, may be used.

Rails to be strongly secured to the building. Stair rails to be $1\frac{1}{4}$ x $\frac{1}{2}$ inch, set flat wise, with upright supports not more than 2 feet apart. Balcony rails and stair rails to be braced at least once in 7 feet.

All the materials for the above work to be of the best refined iron, put together and secured to the building in a thorough and workmanlike manner, to the approval of the inspector.

INDEX

References in this Index are to Sections of the Ordinance.

A.

	Section.
ACCESS TO ROOFS.	
permanent means of, required.....	12
ACCIDENTS, ELEVATOR.	
to be reported to Superintendent of Buildings.....	38
AIR PIPES — PLUMBING.	
definitions of	112
requirements of	117, 118
AISLES, PUBLIC BUILDING.	
must conform to requirements for theaters.....	107
AISLES, THEATER.	
regulations for	88
ALCOVES IN TENEMENT HOUSES.	
definition	42
openings	65
ALTERATIONS AND REPAIRS.	
prohibitions relating to.....	13
permits required for.....	13
tenements	53-72
ALTERATION OF EXISTING BUILDINGS.	
houses of habitation.....	39
general regulations for.....	35
AMUSEMENT PLACES.	
regulations	105-111
ANCHORS.	
provision for	24
ANGLES OF COURTS.	
may have diagonal walls in tenements.....	62
APARTMENT.	
in tenement houses defined.....	42
APPEAL, BOARD OF. (SEE BOARD OF APPEAL.)	
appointment; terms; vacancies; qualifications; deci- sions; reports, etc.....	6, 7, 8
APPEALS FROM SUPERINTENDENT.....	7
APPLIANCES FOR POWER AND HEAT.	
hazardous buildings; regulations for.....	125
AREAS.	
buildings, restriction of.....	17
ART GALLERIES.	
may be placed above theaters.....	108
ASHES AND GARBAGE.	
tenement house, receptacles for.....	76
ASHLAR.	
how computed	23
clamps to be used.....	23
ASSEMBLY, PLACES OF PUBLIC.	
capacity; must be fireproof; general requirements....	105
ASSISTANTS, BUILDING DEPARTMENT.	
appointed by superintendent.....	1
AUDITORIUMS, THEATER.	
heating apparatus under.....	104
seating regulations for.....	87

B.

	Section.
BALCONIES.	
tenement house, requirements of.....	44
BASEMENT.	
definition of	11
tenement house, requirements for.....	70
BEAMS AND GIRDERS.	
proportions of	14
methods of computing strength of.....	16
to be tied.....	12
in steel construction.....	27
BOARD OF APPEAL.	
appointed by Mayor.....	6
decisions of, to be in writing.....	6
to specify variations allowed.....	6
applicants to have copy of.....	7
summary of, in annual report.....	8
hearings on appealed cases.....	7
members of, how appointed.....	6
terms of	6
not to act when interested.....	6
removal from	6
reports, annual, to Mayor.....	8
to contain summary of decisions.....	8
to be printed separately.....	8
vacancies in, how filled.....	6
who may appeal to.....	7
BOARDS, CITY, CERTAIN.	
authority of, not curtailed by this ordinance.....	10
BOILERS AND FURNACES.	
permits for	126
not to be placed on wooden floors.....	13
or under public ways.....	13
BONDING BRICKWORK.	
provision for	24, 25
BOOTHs, VOTING.	
not affected by this ordinance.....	10
BRICKWORK, BONDING.	
provision for	25
BRICKWORK IN COMPRESSION.	
stresses of	14
BRIDGES, QUAYS, ETC.	
not affected by this ordinance.....	10
BUILDINGS, SUPERINTENDENT OF.	
appeal from	7
appointment of	1
authority and powers of.....	1-5
clerk to be appointed.....	1
has power to reject materials.....	15
may appoint deputy; powers of.....	1
enforce requirements	12
require duplicate plans to be kept at building.....	1
plans and specifications.....	1
stop work for violation of permits.....	1
order unsafe buildings vacated.....	4
take measures for public safety.....	12
not to dispense with tenement-house restrictions.....	76
qualifications required of.....	1
salary of, fixed by City Council.....	1
term of office.....	1
to approve plumbing of chemical laboratories.....	117
elevators	38
stable drainage	117
enforce requirements for all buildings.....	12
examine all buildings in course of construction....	2
buildings dangerous, damaged or unsafe.....	3, 4, 5

BUILDINGS, SUPERINTENDENT OF—(Continued)	Section.
keep records of violations.....	2
have charge of Building Department.....	1
post notice of unsafe elevators.....	38
prescribe conditions for buildings outside limits....	17
submit annual report to Mayor.....	1
BUILDING CONSTRUCTION. (SEE SEPARATE SUBJECTS.)	
equivalents in methods of, may be allowed.....	8
height, excavations, cellars, walls, etc., regulations for	18
BUILDING DEPARTMENT.	
superintendent to be in charge of.....	1
how appointed	1
term of office.....	1
qualifications required	1
salary of, fixed by ordinance.....	1
may appoint inspectors, employees, and assistants	1
clerk to keep records open to public.....	1
employees to retain positions until removal or discharge	1
inspectors, qualifications required of.....	1
officers, superintendent, salary, term, etc.....	1
shall examine dangerous buildings and premises..	3
not to engage in other business.....	1
furnish material	1
be financially interested.....	1
requirements and restrictions of.....	1
shall have charge of public buildings.....	1
records to be open to public inspection.....	1
under charge of superintendent.....	1
BUILDING INSPECTION.	
superintendent, or inspectors, to examine all buildings	
in course of construction.....	2
BUILDING ORDINANCE.	
in effect March 1, 1908.....	130
exceptions and exemptions from provisions of.....	10
not to deprive certain city boards and officers of power	10
conflicting acts and ordinances repealed.....	129
BUILDING LIMITS.	
defined	9
BUILDING MATERIALS. (SEE SEPARATE SUBJECTS.)	
combustible, not to be housed in habitable buildings..	127
superintendent has power to reject.....	15
method of computing strength of.....	16
quality of mortar, cement, and concrete.....	15
strength of; tables of stresses.....	14
stresses, tables of.....	14
BUILDING PERMITS. (SEE ALSO PERMITS.)	
applications for	1
how and by whom granted.....	1
if terms of are violated, superintendent may stop work	1
must be on approved printed forms.....	1
requirements for	1
BUILDING PROHIBITIONS.	
list of general.....	13
BUILDING, STORY OF.	
definition of	11
BUILDINGS.	
classes of, defined.....	11
classification	17
height of, defined.....	11
regulations for	18
inspection during construction.....	2
outside finish of.....	12
on lot with tenement house.....	63

BUILDINGS (Continued).	Section.
prohibitions relating to alterations.....	13
moving	13
repairs	13
requirements for all.....	12
superintendent may enforce.....	12
restriction of areas.....	17
record of violations to be kept.....	2
to be supported during construction and repair.....	12
BUILDINGS, ALTERATION OF EXISTING.	
general regulations for.....	35
prohibitions	13
BUILDINGS, CLASSIFICATION OF.	
first and second classes.....	17
regulations for constructing.....	17
BUILDINGS, COMPOSITE.	
definition of	11
BUILDINGS, DANGEROUS OR DAMAGED.	
superintendent to examine and make record.....	3, 4
owner or superintendent to make safe.....	5
BUILDINGS, EXPOSURES.	
regulations for exposure of altered buildings.....	35
BUILDINGS, FEDERAL.	
not affected by this Act.....	10
BUILDINGS, FIRST CLASS.	
definition of	11
BUILDINGS, HAZARDOUS. (SEE HAZARDOUS BUILDINGS.)	
appliances for heat and power in.....	126
must have permits.....	126
hearings on	126
BUILDINGS, MANUFACTURING.	17
BUILDINGS, OUTSIDE LIMITS.	
superintendent to prescribe conditions for.....	17
BUILDINGS, PUBLIC. (SEE PUBLIC BUILDINGS.)	
must conform to regulations for theaters.....	107
BUILDINGS, SECOND CLASS.	
definition of	11
BUILDINGS, STATE.	
not affected by this Act.....	10
BUILDINGS, THIRD CLASS.	
definition of	11
BUILDINGS, WOODEN.	
foundations	39
general regulations for construction of.....	39
height of	40
not to be moved within building limits.....	13
proximity to other buildings and party walls.....	39-40
BULKHEADS AND SCUTTLES.	
tenement house, requirements for.....	45

C.

CEILINGS.	
protected from fire over furnaces.....	32
CELLAR.	
definition of	11
requirements for cellars.....	22
in tenement houses.....	70
CEMENT.	
required qualifications for.....	15
CHEMICAL LABORATORIES.	
plumbing of, to be approved by superintendent.....	117
CHIMNEYS.	
floor timber not to be within two inches of.....	13
restrictions relating to.....	13
thickness of walls.....	12

CHIMNEY FLUES.	Section.
height of	12
lining required	12
CITY ELECTRICIAN.	
appeals from decisions of.....	7
CITY OFFICERS, CERTAIN.	
authority of, not curtailed by this Act.....	10
CLASSES OF BUILDINGS.	
definitions of	11
CLASSIFICATION.	
requirements for classes.....	17
CLEAN-OUTS, FERRULES, ETC.	
required diameter and weight of.....	121
CLERK, BUILDING DEPARTMENT.	
duties of, defined.....	1
to act as clerk of Board of Appeal.....	6
CLOSETS.	
under staircases, restrictions.....	13
COLUMNS.	
in steel construction.....	27
computations relating to.....	16
restrictions and loads.....	14-15
COMBUSTIBLE MATERIALS.	
not to be housed in habitable buildings.....	127
COMPOSITE BUILDINGS.	
definition of	11
COMPUTATIONS, BUILDING MATERIALS.	
methods of	16
CONCRETE.	
regulations for use of.....	14
required qualifications of.....	15
stresses of	14
piles	20
CONCRETE, REINFORCED.	
required qualifications of.....	15
methods of computing strength.....	16
CONSTRUCTION, BUILDING. (SEE SEPARATE SUB- JECTS.)	
height, excavation, cellars, walls, etc., regulations for	18
first and second class buildings.....	17
equivalents may be allowed by Board of Appeal and superintendent	8
CORBELS.	
restrictions relating to chimneys.....	13
in walls for floor timbers.....	34
CORNICES AND PROJECTIONS.	
over public ways.....	13
on walls	29
CORRECTION, HOUSE OF.	
not affected by this Act.....	10
COTTON, PAPER STOCK, ETC.	
not to be housed in habitable buildings.....	127
COURT HOUSE, MIDDLESEX COUNTY.	
not affected by this Act.....	10
COURTS, AREA.	
theaters must have open.....	79,80
COURTS, TENEMENT HOUSE.	
definition of	42
general regulations for.....	57
inner, provision for.....	59
outer, provision for.....	58
vent, regulations for.....	60
CURTAINS.	
theaters must have fireproof.....	84
CUTTING FOR PIPING.	
restrictions concerning	14

D.

DAMAGED OR DANGEROUS BUILDINGS.	Section.
superintendent to examine and make record.....	3, 4
DECISIONS, BOARD OF APPEAL.	
applicants to have copy.....	7
must be in writing.....	7
specify variations, etc.....	7
DEFINITIONS.	
building law terms.....	11
certain words relating to tenement houses.....	42
plumbing	112
theater	77
DEPUTY SUPERINTENDENT OF BUILDINGS.	
appointment of	1
powers of	1
DOORS.	
stage, in theaters, provision for.....	91
DOORWAYS.	
in party and partition walls.....	31
DRAIN.	
requirements for drain pipes, etc.....	122
plumbing, definition of.....	112
DRAINS, SURFACE.	
must have seal trap and back-water valve.....	124
DRAINAGE OF COURTS AND YARDS.	
tenement house, to satisfaction of superintendent....	75
DRAINAGE, STABLE.	
superintendent to approve fixtures for.....	117
DRAWINGS.	
to be approved.....	12

E.

EGRESS. (SEE ALSO EXITS.)	
means of, in case of fire.....	12
from tenement houses, provision for.....	44
stores and storage buildings.....	17
ELECTRICIAN.	
appeals from decision of.....	7
ELEVATORS.	
accidents to be reported.....	38
inspectors may be appointed.....	38
manufacturers required to test.....	38
permits for, how obtained.....	38
to be approved by superintendent.....	38
unsafe, superintendent to post notice.....	38
who may operate them.....	38
ELEVATORS AND HOISTS.	
general regulations for.....	38
fireproof enclosures for.....	38
exceptions	38
EMPLOYEES, BUILDING DEPARTMENT.	
to be appointed by superintendent.....	1
to retain positions until removal or discharge.....	1
ENCLOSURES.	
fireproof for elevators and hoists.....	38
ENTRANCE TO STAIRWAYS.....	48
ENTRANCE HALLS.	
tenement house, construction of.....	49, 51
EQUIVALENTS.	
in methods of construction and maintenance may be allowed	8
EXCAVATIONS.	
general regulations for.....	19
EXCELSIOR, COTTON, ETC.	
not to be housed in habitable buildings.....	127

EXEMPTIONS.	Section.
from provisions of this ordinance.....	10
EXHAUSTS, STEAM.	
regulations pertaining to.....	122
EXISTING THEATERS.	
general regulations for.....	111
EXITS. (SEE ALSO EGRESS.)	
in alterations	35
EXITS, PUBLIC BUILDINGS.	
must conform to regulations for theaters.....	107
EXITS, ROOF GARDEN.	
requirements for	109
EXITS, THEATER.	
general regulations for.....	91-99

F.

FACTORIES OR WORKSHOPS.	
egress	12
FEATHERS, RAGS, ETC.	
not to be housed in habitable buildings.....	127
FEDERAL BUILDINGS.	
not affected by this ordinance.....	10
FEED, HAY, STRAW, ETC.	
not to be housed in habitable buildings.....	127
FERRULES, CLEAN-OUTS, ETC.	
required diameter and weight of.....	121
FIRE.	
means of egress in case of.....	12
FIRE-ESCAPES.	
interior and exterior in tenement houses.....	44
stores and storage buildings.....	17
in what they shall consist.....	44
tenement house, general regulations for.....	44
exterior and interior.....	44
details to be prescribed by superintendent.....	36
FIRE LIMIT DISTRICTS.	
defined	9
FIRE PROTECTION.	
general requirements for.....	32
FIREPROOFING.	
regulations for	12-32
warehouse	17
shutters	37
elevator shafts	38
openings in partition walls.....	31
FIREPROOF PARTITIONS.	
how to be constructed.....	33
FIRE STOPS.	
general regulations	32
FIRST-CLASS BUILDINGS.	
definition of	11
classification	17
FIXTURE.	
plumbing, meaning of term.....	112
FLOORING DURING CONSTRUCTION.	
regulations for	41
FLOORS.	
security of, required.....	12
theater, required levels of.....	82
stage, requirements for.....	85, 89
FLOORS OF EXISTING BUILDINGS.	
superintendent to prescribe maximum loads for.....	36
FLOORS, LOADS.	
least capacity for.....	36
FLOORS, WOODEN.	
furnaces and boilers not to be placed on.....	13

FLOOR TIMBER.	Section.
to be tied to walls.....	12
not to be within two inches of chimney.....	13
in second-class buildings.....	34
FLUES, CHIMNEY.	
height of	12
lining required for certain.....	12
FLUES, VENTILATING.	
must be of incombustible material.....	12
FOUNDATION.	
of wooden buildings.....	39
definition of	11
first and second class buildings.....	21
piling required	20
regulations for	20-23
pipes not to be near woodwork.....	13
ceilings over to be protected.....	32
FURNACES AND BOILERS.	
hazardous buildings, public hearings on.....	126
not to be placed on wooden floors.....	13

G.

GARAGE.	
permits issued by Board of Aldermen.....	13
GARBAGE AND ASHES.	
tenement house, receptacles for.....	76
GARDENS, ROOF.	
above theaters, provisions for.....	108
GAS FITTING AND GAS-FITTING MATERIALS.	
regulations	125
GIRDERS AND BEAMS. (SEE BEAMS.)	
computations relating to.....	16
GRANITE.	
stresses of	14

H.

HABITABLE BUILDINGS.	
combustible materials not to be housed in.....	127
HALL, PUBLIC.	
tenement house, defined.....	42
requirements for	46, 67
HALL, STAIR.	
tenement house, defined.....	42
requirements for	46, 68
HALLS, ENTRANCE.	
tenement house, construction of.....	49
HALLS, PUBLIC.	
capacity of	105
exits	107
general requirements for.....	105
must be ventilated.....	105
HANDRAILS.	
theater stairs, requirements for.....	102
HAY, STRAW, ETC.	
not to be housed in habitable buildings.....	127
HAZARDOUS BUILDINGS.	
appliances for power and heat.....	126
hearings on boilers and furnaces for.....	126
must have permits.....	126
application, hearings, etc.....	126
HEADERS, WOODEN.	
requirements for	12
HEARINGS, PUBLIC.	
hazardous buildings and appliances.....	126

HEARTHES AND PIERS.	Section.
regulations for	30
HEAT AND POWER.	
appliances for, in hazardous buildings.....	126
HEATING APPARATUS.	
theater, under auditoriums, regulations for.....	104
HEIGHT OF BUILDINGS.	
definition of	11
in alterations	35
regulations for	17-18
exemptions to regulations.....	18
HOISTS AND ELEVATORS.	
fireproof enclosures for.....	38
exceptions	38
general regulations for.....	38
HOUSE OF CORRECTION.	
not affected by this Act.....	10
HOUSES, TENEMENT. (SEE TENEMENT HOUSES.)	
additional requirements for.....	42

I.

INSPECTION, BUILDING.	
superintendent, or inspectors, to examine all buildings being constructed	2
INSPECTION, PLUMBING.	
work must be approved.....	116
INSPECTORS, BUILDING.	
appointment by superintendent.....	1
qualifications required of.....	1
INTAKES.	
tenement house, provision for.....	61
IRON, WROUGHT AND CAST.	
strength of	14

J.

JAIL, MIDDLESEX COUNTY.	
not affected by this Act.....	10

L.

LABORATORIES, CHEMICAL.	
plumbing of, to be approved by commissioner.....	117
LANDINGS, STAIR.	
theater, required dimensions of.....	101
LEADERS, ROOF.	
projections of	12
requirements for	12, 124
LEAKS, REPAIR OF.	
plumbing, definition of.....	112
LIGHT.	
tenement house, provision for.....	55
LIGHTS, EXIT.	
theater requirements	99
public buildings, must conform to theater requirements.....	107
LIMESTONE.	
stresses of	14
LINING, CHIMNEY.	
when required	12
LOADS, FLOORS, AND ROOFS.	
provision for, in constructing.....	36
superintendent to prescribe maximum for existing buildings	36
LOBBIES, THEATER.	
requirements for	90

M.

MAINTENANCE, METHODS OF.	
equivalents may be allowed by Board of Appeal and superintendent	8
MARBLE, BUILDING.	
stresses of	14
MARKET BUILDINGS.	
restrictions of Section 9 not to apply to.....	9
MASONRY, BRICK, AND STONE.	
not to rest on wood.....	13
exceptions	13
MATERIALS, BUILDING. (SEE BUILDING MATERIALS.)	
quality of	15
strength of	14
stresses, tables of.....	14
MATERIALS, COMBUSTIBLE.	
not to be housed in habitable buildings.....	127
MERCANTILE PURPOSES.	
portions of tenements used for.....	53
METAL WORK.	
walls	27
fire protection	32
underground to be protected.....	22
strength of	14
computation of strength.....	16
METHODS OF COMPUTATION.	
strength of building materials.....	14
METHODS OF MAINTENANCE.	
equivalents may be allowed by Board of Appeal and superintendent	8
MILL CONSTRUCTION.	
permitted in walls.....	23
MORTARS.	
required qualifications of.....	15
stresses of	14
MOVING BUILDINGS.	
prohibitions relating to.....	13
wooden, within building limits prohibited.....	13
MOVING-PICTURE SHOWS.	
subject to Chapters 176 and 437, Acts, 1905.....	106

N.

NOTICES.	
how given	128

O.

OAK, WHITE.	
strength of	14
OBSERVATION STANDS.	
superintendent must approve plans of.....	13
not to be erected on roof.....	13
OFFICERS, BUILDING DEPARTMENT.	
how appointed	1
not to engage in other business.....	1
furnish materials	1
be financially interested.....	1
requirements and restrictions.....	1
to serve until removal or discharge.....	1
OFFICERS, CITY, CERTAIN.	
powers of, not curtailed by this Act.....	10
OFFICES, STORES, ETC.	
in theater buildings.....	81

P.

PAPER STOCK, COTTON, ETC.	Section.
not to be housed in habitable building.....	127
PARTITIONS, TENEMENT HOUSE.	
construction of	50
PARTITIONS, FIREPROOF.	
how to be constructed.....	33
PARTY WALLS.	
above roof	28
definition of	11
prohibition concerning	13
PASSAGEWAYS, THEATER.	
radiators not to be placed in.....	104
PERMITS, BUILDING.	
applications for	1
requirements of	1
applicants may appeal to Board of Appeal.....	7
action thereon	7
superintendent of buildings shall grant, for construction	1
if terms are violated, superintendent may stop work..	1
to be on approved printed forms.....	1
required for all buildings.....	12
PERMITS, OTHER THAN BUILDING.	
required for alterations.....	12
boilers, steam	1
elevators	38
furnaces and boilers.....	1
plumbing	1, 114
superintendent to grant, on application.....	1
PICTURE SHOWS, MOVING.	
subject to Chapters 176 and 437, Acts, 1905.....	106
PIERS AND HEARTHES.	
regulations for	30
PILING.	
regulations for	20
PINE, WHITE AND YELLOW.	
strength of	14
PIPES, BACK AIR.	
plumbing, requirements for.....	117, 122
PIPES, BRASS.	
diameter, thickness, and weight required.....	121
PIPES, CAST IRON.	
diameter and weight required.....	121
PIPES, DRAIN.	
requirements relating to.....	122
PIPES, GAS.	
regulations	125
PIPES, LEAD.	
how connected with iron pipes.....	121
PIPES, REFRIGERATOR AND DRIP.	
plumbing, regulations for.....	119
PIPES, SMOKE.	
not to project through walls or windows.....	13
PIPES, SOIL AND WASTE.	
plumbing, requirements for.....	117
required diameters for.....	121
PIPES, STEAM, ETC.	
not to be within one inch of woodwork.....	13
restrictions concerning	13
PIPES, WROUGHT IRON.	
fittings for	121
PIPING, CUTTING FOR.	
restrictions relating to.....	14
PLACES OF PUBLIC ASSEMBLY.	
regulations	105

PLANS AND SPECIFICATIONS.	Section.
superintendent of buildings may require.....	1
duplicates to be kept at buildings.....	1
observation stands, superintendent must approve.....	13
PLUMBERS.	
must be registered or licensed.....	113
get permits	114
notify superintendent on changing place of business.....	113
PLUMBING.	
air pipes, definition of.....	112
requirements for	117, 118
appliances for heat and power in hazardous buildings.....	126
bends, lead	121
brass pipe	121
cast-iron pipe	121
chemical laboratories	117
clean-outs, required diameter, and weight of.....	121
connection with sewer or drain.....	115
definition of terms used in.....	112
drain, meaning of.....	112
drain pipes, requirements for.....	122, 124
drains, surface, must have seal trap and back-water valve	124
exhausts, steam, regulations for.....	122
ferrules, required diameter, and weight of.....	121
fixture, definition of.....	112
fixtures in tenement not to be enclosed.....	71
inspection and tests of work.....	116
laboratory, to be approved by superintendent.....	117
lead bends	121
leaders, roof, requirements for.....	124
leaks, repair of, meaning of.....	112
pipes, back air, requirements for.....	117
brass, required thickness.....	121
cast iron, required diameter, thickness, and weight.....	121
wrought iron	121
refrigerator and drip, regulations for.....	119
soil and waste, requirements for.....	117
required diameter of.....	121
vent, definition of.....	112
wrought iron, required diameter, thickness, and weight	121
plumbers must be registered or licensed.....	113
apply for permits.....	114
give notice of change of place of business.....	113
refrigerator and drip pipes.....	119
repair of leaks, definition.....	112
roof leaders, requirements for.....	124
sewer connection	115
soil pipe, definition of.....	112
soil, waste pipes, and traps.....	117
stable drainage fixtures to be approved by superin- dent	117
surface drain, meaning of.....	112
must have seal trap and back-water valve.....	124
terms used, defined.....	112
tests and inspection of work.....	116
to be inspected and approved.....	116
traps, requirements for.....	117
special, when required.....	123
vent pipes, definition of.....	112
vent pipes, requirements.....	117
ventilation pipe, definition of.....	112
vents, requirements for.....	117, 122
waste pipes and traps, provisions for.....	117, 121
water-closets, requirements for.....	120
water-closets, number required.....	12
water-closets, in tenement houses.....	67-69
Y branches, definition of.....	112

PORTABLE SCHOOL BUILDINGS.	Section.
not affected by this Act.....	10
POWER AND HEAT.	
appliances for, in hazardous buildings.....	126
PROHIBITIONS, BUILDING.	
complete list of.....	13
relating to alterations, repairs, and moving.....	13
PROJECTIONS OVER PUBLIC WAYS.	
restrictions relating to.....	13
PROSCENIUM WALLS.	
theaters must have.....	83
PUBLIC BUILDINGS.	
aisles of, must conform to requirements for theaters..	107
exits of, must conform to requirements for theaters..	107
exit lights must conform to requirements for theaters..	107
seats must conform to requirements for theaters.....	107
stairways must conform to requirements for theaters..	107
PUBLIC HALL.	
definition of in tenement.....	42
PUBLIC HALLS AND ASSEMBLY ROOMS.	
regulations	105
PUBLIC HEARINGS.	
on hazardous buildings and appliances.....	126
PUBLIC SAFETY.	
superintendent may take necessary measures.....	12
power of, relating to.....	4-5
PUBLIC WAYS.	
boilers not to be placed under.....	13
PUBLIC WAYS AND SQUARES.	
projections over, regulations for.....	13

Q.

QUALITY OF MATERIALS.	
subject to judgment of superintendent.....	15
QUAYS, WHARVES, ETC.	
not affected by this Act.....	10

R.

RADIATORS.	
theater, forbidden in passageways.....	104
RAGS, FEATHERS, ETC.	
not to be housed in habitable buildings.....	127
RAILROAD STATIONS.	
not affected by this Act.....	10
RECESS, OR CHASE.	
requirements relating to.....	13
REGISTER BOXES.	
fire protection required.....	32
REGISTRATION.	
plumbers	113
REINFORCED CONCRETE.	
specifications	15
computation of strength.....	16
REPAIR OF LEAKS.	
plumbing, meaning of.....	112
REPAIRS.	
tenement house, defined.....	13
prohibitions relating to.....	13
REPAIRS AND ALTERATIONS.	
permits required for.....	13
REPEALS.	
conflicting acts and ordinances repealed by this ordinance	129

REPORTS.	Section.
Board of Appeal to Mayor.....	8
to be printed separately.....	8
REQUIREMENTS.	
general	12
RESTRICTION OF AREAS.	
first class as warehouse.....	17
second-class buildings	17
third class	17
manufacturing	17
ROOFS.	
load on flat roofs.....	36
not to discharge on street or alley.....	13
observation stands not to be erected on.....	13
permanent means of access to.....	12
ROOF GARDENS.	
above theaters, provisions for.....	108
exits required for.....	109
ROOF LEADERS.	
requirements for	124
ROOMS, TENEMENT HOUSE.	
lighting of	63
size of, regulations for.....	66
S.	
SALARIES.	
superintendent of buildings.....	1
SANDSTONE.	
stresses of	14
SCHOOL BUILDINGS, PORTABLE.	
not affected by this Act.....	10
SCUTTLES AND BULKHEADS.	
tenement houses, requirements for.....	45
SEATS, THEATER.	
arrangement, and space for.....	87
SEATS, PUBLIC BUILDINGS.	
must conform to requirements for theaters.....	107
SECOND-CLASS BUILDINGS.	
definition	11
SHAFTS.	
tenement house, regulations for.....	52
SHUTTERS.	
provision and requirements for.....	37
SKYLIGHTS.	
tenement house, regulations for.....	73
SMOKE PIPES.	
not to project through wall or window.....	13
SOIL PIPE.	
plumbing, definition of.....	112
SOIL AND WASTE PIPES AND TRAPS.	
plumbing, requirements for.....	117
SPECIFICATIONS AND PLANS.	
superintendent may require.....	1
duplicate to be kept at building.....	1
observation stands, superintendent must approve.....	13
SPRINKLERS AND STANDPIPES.	
theater, regulations for.....	104
SPRUCE.	
strength of	14
STABLES.	
restrictions relating to location of.....	13
STABLES, DRAINAGE OF.	
fixtures to be approved by superintendent.....	117
STAGE DOORS.	
theater, requirements for.....	91-94
STAGING OR STANDS FOR OBSERVATION.	
not to be erected on roofs.....	13

STAIRS.	Section.
how to be constructed in theaters.....	100-103
load limit	36
tenement house, requirements for.....	44-48
STAIR HALL.	
definition	42
tenement house, construction of.....	46
STAIRWAYS, PUBLIC BUILDINGS.	
must conform to requirements for theaters.....	107
STANDS, OBSERVATION.	
not to be erected on roofs.....	13
superintendent must approve plans of.....	13
STANDPIPES AND SPRINKLERS.	
theater, regulations for.....	104
STATE BUILDINGS.	
not affected by this ordinance.....	10
STATIONS, RAILROAD.	
not affected by this ordinance.....	10
STEAM EXHAUSTS.	
regulations pertaining to.....	122
STEEL.	
tensile strength of.....	14
STIRRUP IRONS.	
when required	12
STONEWORK IN COMPRESSION.	
restrictions relating to.....	14
STORE FRONTS.	
outside finish of.....	12
STORES, OFFICES, ETC.	
in theater buildings.....	81
STORES AND STORAGE BUILDINGS.	
fire-escape, requirements for.....	17
STORY, BUILDING.	
definition of	11
STRAW, HAY, FEED, ETC.	
not to be housed in habitable building.....	127
STRESSES, BUILDING MATERIALS.	
tables of	14
not otherwise provided for.....	14
STRUCTURES, TEMPORARY.	
superintendent may prescribe conditions for.....	9
SUMMER THEATERS.	
outside building limits, how may be constructed....	110
SUPERINTENDENT OF BUILDINGS. (SEE BUILD- INGS, SUPERINTENDENT OF.)	
SURFACE DRAIN.	
plumbing, meaning of.....	112
must have deep seal trap and back-water valve.....	124

T.

TABLES, STRESSES.	
showing strength of building materials.....	14
TEMPORARY STRUCTURES.	
superintendent to prescribe conditions for.....	9
TENEMENT HOUSES.	
additional requirements for.....	42
alcove, definition	42
alcove, openings	65
apartment, definition of.....	42
ashes, receptacles for.....	76
balconies, requirements for.....	44
basements, requirements for.....	70
buildings on same lot.....	63
bulkheads, construction of.....	45
ceilings, protected over furnaces.....	32
courts, definition of.....	42
courts, drainage of.....	75

TENEMENT HOUSES (Continued).	Section.
angles of, may have diagonal walls.....	62
general regulations for.....	57
inner, regulations for.....	59
outer, regulations for.....	58
vent, regulations for.....	60
definitions of certain words.....	42
drainage of courts and yards to satisfaction of super- intendent	75
egress, provision for.....	44
entrance to stairways.....	48
entrance halls, construction of.....	49, 51
existing buildings exempted.....	43
fire-escapes, construction of.....	44
general, regulations for.....	44
floors of basement rooms.....	70
garbage, receptacles for.....	76
intakes, provision for.....	61
light and ventilation.....	55-73
mercantile purposes, portions used for.....	53, 54
other buildings on same lot.....	63
partitions, construction of.....	50
plumbing not to be enclosed.....	71
public hall, definition of.....	42
public halls, windows for.....	67, 73
repairs, definition of.....	42
rooms of, lighting and ventilation.....	64
size of	66
rooms, basement	70
scuttles, construction of.....	45
shaft, regulations for.....	52
sinks	74
skylights, regulations for.....	52, 73
skylights, not to be locked.....	45
stairs	47
stairs and halls for service purposes.....	68
stair halls, construction of.....	46, 68
stair halls, definition of.....	42
stairway to roof.....	45
vent shaft covering.....	52
water-closets, requirements for.....	69, 70, 71
water supply, regulations for.....	74
windows in public halls of.....	67
for stair halls.....	68
windows in basement rooms.....	70
windows in diagonal walls of courts.....	62
windows of halls used for mercantile purposes.....	53
windows in rooms.....	64
windows in water-closet compartments.....	71
wooden houses	51
yards, requirements and regulations for.....	55, 56
drainage of	75
where not required.....	56
used for industrial purposes.....	56
TERMS USED IN PLUMBING.	
meaning of, defined.....	112
TESTS, ELEVATOR.	
manufacturers must make.....	38
TESTS, PLUMBING.	
work must be approved.....	116
THEATERS.	
aisles, regulations for.....	88
art galleries above.....	108
auditorium, seats	87
auditoriums, heating apparatus under.....	104
construction	78
courts	79, 80
curtains, must have fireproof.....	84

THEATERS—(Continued)	Section.
definition	77
doors	93, 94
doors, stage	91
exits	91-99
existing	111
fire apparatus	104
fireproof construction required.....	78
curtains required	84
furnace and boilers.....	104
floor levels of.....	82, 89
floor, stage	85
handrails, stair, requirements for.....	102
illuminating fixtures	86
landings, stair, required dimensions of.....	101
lobbies, requirements for.....	90
open courts required.....	79, 80
passageways	104
proscenium walls required.....	83
curtains, required.....	84
public buildings must conform to requirements for.....	107
radiators forbidden in passageways of.....	104
room exits	92
roof gardens may be above.....	108
seats in auditorium, requirements for.....	87
stage doors must be provided.....	91
floors, requirements for.....	85
stairs, how to be constructed.....	100-103
sprinklers, automatic, required.....	104
standpipes required	104
stores, offices, etc., under.....	81
summer	110
theater, definition of.....	77
ventilators, requirements for.....	86
wall, proscenium	83
THICKNESS OF WALL.	
definition	11
requirements	23
THIRD-CLASS BUILDINGS.	
definition of	11
TIMBERS.	
in walls, how to be treated.....	34
TRAPS, PLUMBING.	
requirements for	117
grease, inflammable compounds, non-siphon.....	123
TRIMMERS, WOODEN.	
when required	12
TRUSSES, RIVETED.	
rule for computation.....	16

U.

UNSAFE BUILDINGS.

superintendent may order vacated.....	4
to post notices on.....	4

V.

VACANCIES.

in Board of Appeal, how filled.....	6
-------------------------------------	---

VAULTED WALLS.

regulations for	26
-----------------------	----

VENTILATION, TENEMENT HOUSE.

provision for	55
---------------------	----

VENTILATION PIPE.

plumbing, definition of.....	112
------------------------------	-----

VENTILATING FLUES.	Section.
must be of incombustible material.....	12
VENTILATORS, THEATER.	
requirements for	86
VENT PIPES.	
plumbing, definition of.....	112
VENTS.	
plumbing, requirements for.....	117
VOTING BOOTHS.	
not affected by this Act.....	10

W.

WALLS.	
anchors	24
brick-bonding	25
foundations for	21
framed with iron or steel.....	27
general regulations for construction of.....	23
mill construction permitted.....	23
proscenium, theaters must have.....	83
WALLS ABOVE ROOF, PARTY.	
requirements for	23
WALLS, CORNICES.	
regulations for	29
WALLS, CURTAIN.	
party and outside, must have.....	27
WALLS, PARALLEL.	
to be properly tied.....	12
WALLS, PARAPET.	
thickness of	23
WALLS, PARTITION.	
definition of	11
doorways in	31
thickness of	23
not carrying floor loads.....	23
WALLS, PARTY.	
above roof	28
definition of	11
must have curtain in steel construction.....	27
openings for doorways in.....	31
thickness of	23
wooden buildings to have.....	40
WALLS, THICKNESS OF.	
meaning of, defined.....	11
regulations relating to.....	23
WALLS, VAULTED.	
regulations for	26
WASTE PIPES AND TRAPS.	
plumbing, requirements for.....	117
WATER-CLOSETS.	
number required	12
requirements for	120
tenement house, provisions for.....	66, 69, 71
ventilation of	12
WATER PIPES.	
protection from frosts.....	12
WATER SUPPLY.	
tenement house, requirements for.....	74
WHARVES, MARKET BUILDINGS, ETC.	
restrictions of, Section 9 not to apply to.....	9
WHARVES, QUAYS, ETC.	
not affected by this ordinance.....	10
WIND-BRACING.	
provision for, required.....	14

WINDOWS.	Section.
fire shutters required.....	37
habitable buildings, regulations for altered.....	35
tenement house	64
tenement house, in public halls.....	67
for stair halls.....	68
WIRES, DEPARTMENT.	
provisions of Section 7 apply to city electrician.....	7
WOODEN BUILDINGS.	
construction of, general regulations for.....	39
height of; requirements.....	40
foundations	39
not to be moved within fire limits.....	13
proximity to other buildings and party walls.....	39-40
WOODEN HEADERS.	
requirements for	12
WOODEN TRIMMERS.	
when required.....	12

Y.

Y BRANCHES.	
plumbing, definition of.....	112
YARDS, TENEMENT HOUSE.	
general regulations for.....	55
when not required.....	56





